CONFORMITY BEHAVIOR OF SCHIZOPHRENIC SUBJECTS TO MATERNAL FIGURES

BY

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A.R.C.

CONTENTS

I INTRODUCTION 2

II STATEMENT OF THE PROBLEM 13

III SUBJECTS 17

IV APPARATUS 25

V PROCEDURE 33

VI RESULTS 45

VII DISCUSSION 74

VIII SUMMARY 104

APPENDIXES 106

REFERENCES 153

LIST OF TABLES

Table

I Ages of the Subject Groups 19

II Social Position of the Patient Groups 20

III Comparison of Father-Son Occupation Levels 21

IV Educational Level of Patient Groups (in Years) 22

V Length of Hospitalization: Schizophrenic Groups 23

VI Phillips Premorbid Ratings: Schizophrenic Groups 23

VII Ascription of Loving and Unloving Items: PALS Test 46

VIII PALS Test: Summary Table of Type VI Analysis of Variance . . 48

IX Mean Differences in Proportion of Agreement and Disagreement with Negative and Positive Mothers (Proportion of Agreement Minus Proportion of Disagreement) 53

X Differences in Proportions of Agreement and Disagreement with Negative Mother (Proportion of Agreement Minus Proportion of Disagreement) 53

XI Mean Latencies of Agreement and Disagreement Responses to Positive and Negative Mothers 56

XII Latency of Agreement and Disagreement Responses to Positive and Negative Mothers. Summary Table: Type VI Analysis of Variance. 57

XIII Mean Differential Latency of Agreement and Disagreement Responses with Negative and Positive Mothers (Latency of Disagreement Minus Latency of Agreement) . . 60

XIV Differential Latency of Agreement and Disagreement Responses with Negative and Positive Mothers. (Latency of Disagreement Minus Latency of Agreement) Summary Table: Type I Analysis of Variance. 61

XV Mean Differential Change in Occupational Preference on Repeat Items (Change-toward-agreement Minus Change-toward-disagreement). 65

Table

XVI Mean Differential Change in Occupational Preference on Repeat Trials (Change-toward agreement Minus Change-toward-disagreement) Summary Table: Simple Randomized Analysis of Variance 65

XVII Differences in Proportions of Agreement and Disagreement with Positive Mother (Proportion of Agreement Minus Proportion of Disagreement) Summary Table: Simple Randomized Analysis of Variance 73

XVIII Pilot Ratings of Voices: Adjective Pairs 134

XIX Pilot Ratings of Voices: Adjective Check Lists. 134

LIST OF FIGURES

Figure

1 S During Playing of Taped Interview (Positive Mother on Screen) 36

2 E During Playing of Taped Interview (Negative Mother on Screen) 36

3 Occupational Choice Apparatus as Used on Pre-tape Trials 40

4 Occupational Choice Apparatus as Used with Maternal Stimulus 40

5 E's Control Apparatus 43

6 S Engaged in Occupational Choice Task 43

7 Mean Number of Loving and Unloving Items Ascribed to the Positive and Negative Mothers. 50

8 Mean Differences in Proportions of Agreement and Disagreement with Negative Mother (Proportion of Agreement Minus Proportion of Disagreement) 55

9 Mean Latency of Agreement and Disagreement Responses (Positive and Negative Mothers Combined) 59

10 Mean Differences in Latencies of Agreement and Disagreement Responses with Negative Mother 63

11 Changes in Occupational Preferences on Repeat Items ("Change-toward-agreement" Minus "Change-toward-Disagreement") 68

12 Mean Differences in Proportions of Agreement and Disagreement with Positive Mother (Proportion of Agreement Minus Proportion of Disagreement). 70

13 Mean Differences in Latencies of Agreement and Disagreement Responses with Positive Mother 72

14 Fate Control. 97

15 Behavior Control. 97

LIST OF APPENDIXES

Appendix

A Hollingshead's Two-Factor Index of Social Position 107

B History of Drug Therapy for Schizophrenic Patients 116

C The Phillips Premorbid Scale of Adjustment in Schizophrenia. 118

D Tape Recording of Session with Mothers 125

E Source and Dimension of the Child-Rearing Attitude Statements 129

F Pilot Study for Selection of Equated Voices. 131

G Stimulus Identification Panel. 136

H PAIS Test. 139

I Occupational Choice Cards. 141

J Occupational Choice Apparatus. 144

K Proportions of Agreement 147

L Direction of Change on Repeat Trials 148

M Latencies of Agreement and Disagreement 149

N PAIS Test Data 151

CONFORMITY BEHAVIOR OF SCHIZOPHRENIC SUBJECTS TO MATERNAL FIGURES

Chapter I

INTRODUCTION

Many recent clinical studies of schizophrenia have been aimed at clarifying the nature of the relationship that has existed between the schizophrenic patient and other members of his family. The majority of these investigations have focused upon the mother-son relationship, and the experiment to be described represents an extension of this area of study. Specifically, the present investigation was an attempt to observe the extent to which schizophrenic patients would conform to the preferences expressed by mothers who possess some of the attributes reported to characterize mothers of Poor premorbid (Phillips, 1953) schizophrenic patients. These attributes, it was hoped, would serve as relevant cues for eliciting conformity responses in such patients.

Review of the Literature. Research in family relations in schizophrenia has a rather substantial history (Lidz and Fleck, 1960; Rabin and King, 1958). Early research in this area was primarily of a descriptive nature, that is, these studies were not designed to elucidate the effect of any specific independent variables; rather, they were "hypothesis-generating" studies. Typi-

cally, such investigations were based on samples either of patients known to be schizophrenic, or of their parents, and attempts were made to isolate those characteristics of the intra-familial relationships that could serve to differentiate the families of patients from normal families. Most of these early studies are couched only in terms of the subjective impressions of the investigator raising questions of reliability, sampling procedures, the lack of rigorous statistical tests and the like. The results of these early studies are reviewed and summarized by Sanua (In Press). There is rather striking consistency in many of the studies in suggesting the presence of highly deviant mother-child relationships. The most common characterization of these mothers describes them as women who either overpoweringly dominate their sons, to the point that self-assertion for the sons is impossible, or they are overtly or covertly rejecting of them. Thus some authors (Jackson, Block, Block, and Patterson, 1958) lay heavy stress upon the overtly hostile, irritable and rejecting mother. Others (Bateson, Jackson, Haley, and Weakland, 1956; Lidz and Lidz, 1949; Reichard and Tillman, 1950; Tietze, 1949) emphasize as particularly pathogenic the type of mother who exerts a more subtle and pervasive sort of control masked by a facade of overprotectiveness. Bateson et al. (1956) have described the "double-bind" nature of the relationship between the schizophrenic son and his mother in which expressions of love and closeness, as well as manifestations of distance and withdrawal, are punished. The "double-bind" hypothesis describes a family atmosphere comparable to the "pseudo-mutual" family milieu of the schizophrenic as outlined by Wynne, Ryckoff, Day, and Hirsch (1958). Pseudo-mutuality stresses the need within the family to eliminate divergence of opinion or expectation because of the threat it poses to the implicitly defined roles within the family. Thus, for Wynne et al., contradiction by family members is to be avoided.

Another group of studies of more recent origin has supplemented these sensitive descriptions with more carefully controlled experimental procedures. In several studies structured interviews and attitude scales have been used, with schizophrenic patients serving as informants. Typically in these studies the patient was asked to think back to the period of his adolescence and to describe his parents as he recalled them at that time (Clausen and Kohn, 1960; Garmezy, Clarke and Stockner, In Press). The results of many of these studies tend to confirm clinical observations of excessive dominance and authority patterns in the mother-child relationship in schizophrenics. In still other studies (Freeman and Grayson, 1955; Mark, 1953; Prout and White, 1950; Shepard and Guthrie, 1959) mothers of schizophrenic patients and mothers of normal controls have served as Ss, responding to child-rearing inventories and other personality tests; the data from these have been used to differentiate attributes of the two groups of respondents. Many of these studies, too, tend to confirm the significance of the maternal role as one possible antecedent to the schizophrenic disorders. They also lend weight to the salience of domination and/or rejection as personality characteristics of the mothers of schizophrenic patients.

Duke Schizophrenia Project. Few of the studies alluded to above have given consideration to a systematic subclassification within the schizophrenic disorders. Since most have dealt with "schizophrenia," as a unitary (rather than as a heterogeneous) disorder, it would be expected that such methodology could obscure patterns of family relationships within subgroups of schizophrenic patients. Studies carried out on the Duke Schizophrenia Project over the past ten years (Garmezy and Rodnick, 1959; Rodnick and Garmezy, 1957) have attempted, as part of their focus, to reduce the variance inherent in so much of the data on schizophrenics. Part of the strategy of the Project has

been to search out those characteristics of certain subgroups of schizophrenic patients that might serve to differentiate these patients from others. The most potent of the variables for accomplishing this has been the level of premorbid social and sexual adjustment exhibited by the patient. Using the Phillips Scale of Premorbid Adjustment in Schizophrenia (Phillips, 1953), Rodnick and Garmezy (1957) have reported that schizophrenic patients may be reliably classified into two groups: a group termed "Poor Premorbid" schizophrenics, whose pre-psychotic social and sexual adjustment, from childhood on, had been quite marginal; and a group of so-called "Good Premorbid" schizophrenics, whose level of premorbid adjustment had indicated a more mature capacity for social and heterosexual interactions. Thus "Poors" modally have tended to be socially isolated in childhood, adolescence and adulthood, and have exhibited a lack of heterosexuality. "Goods," on the other hand, have had friends, engaged in social activities, and have shown themselves able to attain and maintain object relations. The results of some of the studies done under the auspices of the project would appear to qualify the postulated pattern of mother-child relationships in schizophrenia. It has been found consistently in these studies that the markedly pathological relationship between mother and child has been most manifest in the history of Poors, whereas such distorted mother-child relationships are not as characteristic for Goods. In this latter group it appears to be the father who has played a more crucial role. (However, the results for Goods have tended to be more ambiguous relative to those obtained with Poors.) These studies do not suggest that previous formulations of the relationship between the schizophrenic patient and his mother are inaccurate, but only that such relationships are much more characteristic of some patients (Poors) than others (Goods). (Dunham, 1959; Garmezy et al., In Press; Garmezy and Rodnick, 1959; Kreinik, 1959.)

Avoidance of Punishment. Another focus of the Duke studies which had relevance for this experiment was concerned with the nature of the prepotent responses exhibited by the Poor premorbid schizophrenic patient when confronted with censure---either in the form of "Wrong" signals or other symbolic representations of censure. A number of these findings have been summarized and a theoretical framework for them has been elaborated in an unpublished paper by Garmezy (1960). In essence, the position now adopted by the Duke investigators is that the most potent response in the habit hierarchy of the schizophrenic patient is avoidance, and that this response will be most reliably manifested under conditions that threaten the patient with censure or punishment. Garmezy states: "The social withdrawal and isolation manifested by the schizophrenic has been viewed as a learned defensive habit pattern designed to reduce anxiety and to facilitate removal from early traumatic and rejecting relationships so often characteristic of the patient-parent interactions" (1960, p. 9) and later in the same paper: "The schizophrenic . . . is extraordinarily sensitive to motivants and motivating states, but the responses or habits associated with such arousal are designed to remove him from the situation as rapidly as possible . . . " (1960, p. 11). These statements are of course consonant with clinical observations. Of particular interest, however, have been the experimental manifestations of avoidance: Certain of the Duke studies have shown that Poor premorbid schizophrenics tend to "avoid" lever movements that have been followed by "Wrong" informational signals (Bleke, 1955; Zahn, 1959) and that such patients tend to be avoidant (in terms of preference choice) of photographs of persons that have been contiguously paired with the incidental lighting of a "Wrong" signal. (Alvarez, 1957.)

The Prediction of Conformity. Taken at their face value, the studies quoted from the Duke schizophrenia project seem to suggest that the prepotent

response of the schizophrenic patient in the presence of stimuli which threaten him with punishment or censure, is to avoid such stimuli or withdraw from them. The psychiatric and psychological literature reviewed above has indicated that the mother of the Poor may be seen almost as a prototype of the "Wrong" signal that has been found to have such potency in eliciting the response of avoidance. This is especially confirmed in the studies of Farina (1960) and Garmezy et al. (In Press). A synthesis of these areas of research would lead to the prediction of avoidance or withdrawal in the presence of such maternal stimuli.

In apparent contradiction to such a prediction, however, is a sizeable area of psychiatric literature that describes the relationship between the preschizophrenic child and his mother as a "symbiotic" one. The view taken in these studies is that the mother of such a child is unwilling to allow him any autonomy, and concentrates her energies upon the task of binding him within a rigidly defined family relationship. Wynne et al. (1958) have described such a relationship as one of "pseudo-mutuality" enacted within a "rubber fence." In a subsequent article by the same group of investigators (Ryckoff, Day, and Wynne, 1959) reference is made to the inflexible manner in which roles within the schizophrenic's family are defined, and the pressures which are brought to bear when any member attempts to deviate from the definition. Stierlin (1959) calls this the adaptation to the "stronger person's reality." Bateson et al. (1956) consider one of the primary conditions for the successful "double-bind" to be that the option of leaving the relationship is not open to the victim. They feel that the child has a special meaning for the mother, such that while she cannot tolerate intimacy with the child, his withdrawal or rebellion is equally threatening to her and, therefore, not permitted. Other authors who have stressed the pattern of compliance in schizophrenia are Arieti (1955)

and Limentani (1956). The prediction of these authors, apparently, would be that, faced with stimuli possessing punishing properties, such as a cold, domineering maternal figure, the schizophrenic individual will conform to her expectations and needs.

Are the two predictions described above really contradictory, or only apparently so? Garmezy's (1960) theoretical paper would suggest that the predictions are not so incompatible as they appear; although the paper was addressed to a slightly different problem, its applicability to this issue is clear. Garmezy was attempting to resolve what had been presented in the literature as an apparent contradiction to the "avoidance under censure" hypothesis. Cavanaugh, Cohen, and Lang (1960) had found that schizophrenic patients, performing in an experimental situation in which aversive reinforcement was used, had shown performance levels comparable to those of normal control subjects. The results were presented as contradicting Rodnick and Garmezy's (1957) assertion that under conditions of censure the performance of schizophrenics will be significantly inferior to the performance of normals, and inferior to their own performance under conditions where censure is not present. Garmezy (1960) stressed that a careful analysis of the response is necessary in any experimental situation to which the schizophrenic patient is brought, and that the predictions of the patient's performance must be based upon whether or not the patient sees his response as being instrumental to the avoidance of punishment. To the extent that the response called for by E is compatible with avoidance of punishment the performance of the schizophrenic patient will approach, and sometimes even exceed, the performance of normals. Using this formulation, Garmezy showed that the results of the Cavanaugh study were not incompatible with the Rodnick and Garmezy (1957) formulation; in the Duke studies, the response E used as a performance cri-

terion was incompatible with the response that represented an avoidance of punishment, and thus the patient's prepotent response tendency led to decreased performance. In the Cavanaugh study, the response E used as a performance criterion was the very response that had the highest probability of removing S from the aversive stimulus; hence S's heightened performance.

Garmezy's (1960) formulation would appear to be equally applicable to the apparent contradiction between the prediction of avoidance vs. the prediction of conformity in the present study. To the extent that the schizophrenic patient perceives withdrawal from his mother or avoidance of her as freeing him from the threat of punishment, he will resort to that response. If, however, he is required to remain in interaction with his mother, a condition the psychiatric literature sees as typical, then withdrawal and avoidance would carry with it the threat of punishment. Under these conditions the response most likely to avoid punishment would probably be an unquestioning conformity to the demands of the maternal figure. Support for this prediction is provided in a classical study of parent-child relationships by Levy (1943). Commenting upon Levy's study, Garmezy et al. (In Press) have noted:

> Levy's (1943) well-known research into maternal over-protection has shown that the consequences of marked dominance in mothers is excessive obedience, docility and submissiveness in their male children, accompanied by an increased estrangement from the peer culture. Levy reports that the combination of over-protectiveness and dominance in some of his mothers markedly reinforced the dependency solicitations of their male children. Such combinations of attitudes are not unlike those frequently reported in the literature of schizophrenia. (In Press.)

If the view of conformity as an example of avoidance behavior is a valid one, one may expect that manifestations of compliance or conformity to the judgments of maternal figures could also be demonstrated experimentally in a manner not unlike those studies that have demonstrated other manifestations of

learned avoidance. To do so, however, seemed to require the construction of an experimental situation containing (1) highly relevant stimulus cues and (2) a task that did not permit the schizophrenic patient to mobilize his overriding propensities for withdrawal. It was reasoned that if enforced participation could be successfully maintained in an experimental procedure, in which the schizophrenic patient was brought into interaction with a powerful maternal figure, and if, in addition, withdrawal tendencies were either not permitted or made to appear potentially punishable, it was likely that the patient would show a strong predisposition to conform to the judgments and decisions of the maternal figure.

The literature reviewed thus far can be summarized in the form of two propositions, both of which have received experimental confirmation:

1. Maternal figures exhibiting behavioral attributes of dominance and/or rejection appear to possess particular cue relevance for Poor premorbid schizophrenics (such relevance presumably is a function of the pattern of earlier relationships the patient as a child has had with his own mother).

2. The prepotent response system for schizophrenic patients, in the presence of such cues, appears to be one of withdrawal or avoidance if such habits serve to reduce for the patient the possible threat of social censure or punishment.

A synthesis of these observations, and an extension of them, led to a prediction of conformity behavior under certain experimental conditions. The prediction of conformity, however, suggested several other questions, and the present study was designed to attempt an answer to those questions as well.

The first of these additional questions was a methodological one. It had to do with whether or not it was possible to construct an experimental situa-

tion in which the stimulus contents used were more specific, more salient, and more dramatic than the stimuli used in previous studies in the area of parent-child relationships as they relate to schizophrenia. In spite of the clinical belief that mothers who possess the attributes that have been described may have played an important role in the etiology of the schizophrenic disorders, the incorporation of mothers with such attributes as stimuli in experimental studies has been rather peripheral (Garmezy and Rodnick, 1959). Seldom have patients been confronted with stimuli that are anything more than suggestions of the mothers for whom they were to serve as experimental analogues. The use of real parents would make this methodological issue unnecessary but some of the disadvantages of such procedures are obvious: parents of schizophrenics are often unwilling to participate in experimental research; they are unduly defensive in interactions with professionals (Lidz and Lidz, 1949; Tietze, 1949); multiple stimulus figures pose a major problem for control; and there are numerous potentially detrimental effects that may be visited upon the patients by such parental participation. However, dramatization of personality attributes of maternal figures seemed possible by more extensive use of verbal and visual materials.

Another of the questions suggested by the prediction of conformity had to do with S's perception of such a mother. If indeed the schizophrenic patient manifested the conformity predicted above, it would be of interest to know just how he perceived the maternal figure with whom he conformed. For example, if he perceived her as a highly positive, desirable sort of person, then, regardless of her objective characteristics, his conformity would not appear dissonant, at least to him. On the other hand, it seemed possible that he would perceive such a maternal figure with reasonable accuracy, but simply be unwilling to behave in a way that carried with it the threat of in-

curring her displeasure. Other studies in which schizophrenics have been asked to describe their mothers in terms of child-rearing attitudes (Garmezy et al., In Press; Harris, 1957; Mark, 1953) have shown such patients to be able to ascribe fairly negative traits to them. It was decided in the present study to include some means of determining the patient's perception of the mother with the aim of relating his perception of her to his conformity behavior in her presence.

The question of whether such maternal types as have been described are the only ones capable of eliciting conformity behavior by the Poor premorbid schizophrenic patient suggested that the study should provide for the use of a contrasting type--markedly lacking in "schizophrenogenic" properties. Although such contrasting figures have been used before (Dunham, 1959; Dunn, 1954) their distinctiveness has been attenuated by their stimulus properties (simple line drawings and silhouettes) and by their method of presentation (tachistoscopic).

Finally, the issue of whether other psychopathological groups might not be affected as much by such maternal figures as were schizophrenics had relevance for this study, and led to the use of several other groups of subjects for purposes of control and comparison.

Chapter II

STATEMENT OF THE PROBLEM

The review of the literature has suggested four hypotheses which form the basis for the present study. For one of the hypotheses a definite prediction was made--the other three were phrased as questions demanding confirmation or disconfirmation. Each hypothesis is stated below and is followed by a description of some of the methodological controls introduced to implement the achievement of the desired experimental effect.

1. *Poor premorbid schizophrenic patients, when confronted by a domineering, cold, maternal figure, and given information regarding her preferences in a given choice situation, will tend to conform to those preferences under conditions where withdrawal is not possible.*

   (a) Care was taken in the selection of schizophrenic patients to insure that they were unquestionably Poor premorbid Ss. A cutoff score of 18, used to advantage by Farina (1960) was utilized in screening the patients. All but one fell above this score, and most were rated in the twenties.

   (b) An attempt was made to imbue the maternal figure with as much

dramatic impact and cue relevance as possible. This included the use of Southern regional accents (all Ss were native North Carolinians), the visual projection of large pictures of the mothers as they spoke, and the use of tape-recorded pseudo-interview material containing contents that reflected highly deviant child-rearing attitudes.

(c) The preferences of the maternal figure were made clear to the patient in a situation in which he was maximally subject to her influence, but in which the instructions were such that he was free to remain uninfluenced.

(d) All apparatus and measurement procedures were designed so that S could make his responses with minimal effort, through the use of simple switch levers, and push-button contacts. Rodnick and Garmezy have emphasized in all studies in the Duke Schizophrenia Project that "schizophrenic patients can and do respond adaptively in tasks of considerable complexity and difficulty provided that these tasks have been made sufficiently interesting to insure the cooperation of the patient" (1957, p. 116).

(e) The entire procedure was designed to keep the patient actively involved at all times. The pictorial stimuli were projected on a screen in a darkened room, taped material was introduced to the patient through earphones, and the patient was given to understand that each step of the experimental procedure was dependent upon his continued attention and response.

2. Do Poor premorbid schizophrenic patients, when exposed to presumably threatening maternal figures, accurately perceive and report the negative, threatening characteristics of such figures? The experimental means of

measuring the patient's perception of the maternal figure was presented to him in a way that minimized the amount of verbal participation he was required to make, and the questions asked of him were simply phrased.

3. *Will the conformity behavior, if elicited, be restricted to the responses to the cold, domineering maternal figure, or will they be so generalized as to be elicited by a quite dissimilar maternal figure?* Interest in this question led to the inclusion in the study of a maternal figure characterized by warmth, love and democratic belief; and the measurement of the schizophrenic patient's behavior in her presence as well as in the presence of the negative mother.

4. *Will the conformity behavior, if elicited, be characteristic only of the Poor premorbid patients receiving no physical therapy such as drugs or EST; or will groups from different populations respond similarly?* This question led to the inclusion of three others groups of subjects:

(a) A group of Poor premorbid schizophrenic patients receiving drug therapy: This group was included on the basis of previous studies done on the Duke Schizophrenia Project. (Alvarez, 1957; Zahn, 1955) These studies in general have shown that tranquilizing medication has the effect of reducing the heightened avoidance tendencies of such groups of patients. If the conformity can validly be viewed as a special example of avoidance behavior, then one might expect less conformity behavior in this group than in the Non-Drug group.

(b) A group of alcoholics which was included as a control for the effects on the response measures of general psychopathology as compared with the schizophrenic disorders: These were all hospitalized patients, and members of a population with recognized psychopathology, but none was diagnosed schizophrenic. It was assumed that differences in response

tendencies between this group and the group of Non-Drug schizophrenics could be attributed mainly to the effects of schizophrenia as a unique form of psychopathology.

(c) A group of normal individuals, with no history of psychiatric disorder: Used as a control for the presence of any form of psychopathology.

Chapter III

SUBJECTS

Forty Ss were used in this study. Twenty of these were Poor Premorbid schizophrenics as defined by their scores on the Phillips Scale (1953. (See Appendix C.) Of these twenty, ten were receiving drug therapy at the time of testing and ten were off medication.[1] Two additional groups comprised control Ss used in the experiment. One group of ten patients was comprised of diagnosed, hospitalized alcoholics and served as a psychiatric, but non-psychotic, control group; another group of ten Ss were maintenance workers and clerical workers employed at the Durham Veterans Administration Hospital who served as a non-psychiatric normal control group.

Three hospitals were used as sources for the patients in this study. All

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[1] These Ss had been removed from tranquilizing medication two weeks prior to participation in the study. The implications of discontinuation of drugs are considered in Chapter VII. All Ss who had received drug therapy, or were on drugs at the time of the study, were treated with drugs from the phenothiazine group. The type of drug and dosage levels for each S appear in Appendix B.

of the Alcoholics[2] and some of the schizophrenic Ss were obtained at Dorothea Dix Hospital, Raleigh; some of the schizophrenic Ss were obtained at Umstead Hospital, Butner, North Carolina; and the remaining schizophrenic Ss were obtained at the Durham Veterans Administration Hospital.

Of the schizophrenic Ss, eight were diagnosed Chronic Undifferentiated type (5 Drug, 3 Non-Drug); four were of the Acute Undifferentiated type (2 Drug, 2 Non-Drug); three were diagnosed Paranoid type (2 Drug, 1 Non-Drug); two were Catatonic type (1 Drug, 1 Non-Drug); two were Simple type (Non-Drug); and one was diagnosed Schizo-affective type (Non-Drug).

All of the Ss used in the experiment met the following selection criteria:

(a) Male.

(b) Of at least average intelligence.

(c) Between ages 18 to 45.

(d) A history of having lived with both parents until age 18.

(e) No history of organic brain pathology.

The schizophrenics, further, had to achieve a score on the Phillips Scale (1953) that was at least 15 or greater, and preferably at least 18; preference for the latter value was to insure a definite Phillips classification as a Poor Premorbid, as cited by Farina (1960) and others (Kreinik, 1959; Dunham, 1959). The normals, in addition to the above criteria, were selected only if they showed no evidence of a history of psychiatric illness.

All of the comparative data for the four groups appear in the following tables.

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[2] These Alcoholics were all committed by the court to a 28-day treatment center at Dorothea Dix Hospital. None was used in the study until he had been at the center for at least 14 days, in order that acute intoxication could be ruled out as a determinant of his behavior.

Table I presents the ages of the four groups of Ss, reported in terms of the range, means, and standard deviations, as well as median values. The Drug and Non-Drug groups are well matched on this variable, while the Alcoholics and Normals are apparently drawn from a slightly older population. This was true for the Alcoholics, primarily because of the small proportion of hospitalized alcoholics who are below thirty years of age. In the case of the Normals, since only a small number of Ss volunteered to participate in the experiment, a more appropriate matching on the age variable was not possible.

Table I

AGES OF THE SUBJECT GROUPS

	Non-Drug Sx (N=10)	Drug Sx (N=10)	Alcoholics (N=10)	Normals (N=10)
Mean	27.90	28.00	30.90	35.60
S.D.	7.05	5.39	5.22	7.28
Median	30.00	28.50	32.50	37.50
Range	18-37	18-35	23-37	23-43

Tables II and III present information about the social position of the four groups of Ss. The index of social position used was one devised by Hollingshead (1958),[3] and is based upon the joint factors of education and occupational status. Hollingshead has empirically derived weights for the two factors used--education is multiplied by a weight of 3, and occupation by a

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3. A copy of Hollingshead's scale appears in Appendix A.

weight of 7. The two are then summed to give the index.

> Example: A man who has completed high school (education rating = 4) and who works as a carpenter (occupational rating = 5) earns an index of 47 [(3 x 4) + (7 x 5)].

This index is a more effective indicator of S's social class when such information is available for rating S's father. Unfortunately, information about the education of the fathers of the Ss used in this study was not available; however, categorizing on the basis of S's data was possible, since educational and occupational data were available for all of the Ss used in the study, except Normals. It was decided, therefore, to establish index ratings on the basis of S's data. In addition, the occupation of the father was available, and has been included as supplementary data.

Table II presents the two factor index of social position for the three groups from whom the needed information was available--Drug schizophrenics, Non-Drug schizophrenics, and Alcoholics. In each case, the higher the score, the lower the educational level, the occupational status, and the overall index.

Table II

SOCIAL POSITION OF THE PATIENT GROUPS*

		Non-Drug Sx	Drug Sx	Alcoholics
Education	Mean	4.70	4.40	5.20
	S.D.	1.42	1.43	0.79
Occupation	Mean	6.30	5.40	4.70
	S.D.	1.16	1.43	1.06
Combined Index	Mean	58.20	51.00	48.50
	S.D.	9.87	12.75	9.31

*Based upon Hollingshead index (1958) and computed on patient's data rather than father's (see Appendix A).

It may be seen that these groups differ in their ratings of social position, the rank order from highest to lowest being Alcoholics, the Drug group, and the Non-Drug group. This rank ordering of social position is more directly a result of differences between the groups in occupational status than educational advantages. The Alcoholics, for example, even though less well educated than either of the groups of schizophrenic patients, have achieved a higher occupational status and hence a higher social position as defined by this index.

Table III makes use only of the occupational information on father and son, which was available for all groups. It is interesting to note the relationship between the level of occupational status achieved by the son relative to the father. Discrepancy between father and son in occupational achievement appears to be related to the depth of psychopathology manifested in the son. The Non-Drug schizophrenics, on the average, are more than a full occupational level below that achieved by their fathers; the Drug schizophrenics, while not so inferior as the Non-Drugs, nevertheless have also failed to achieve an occu-

Table III

COMPARISON OF FATHER-SON OCCUPATION LEVELS*

		Non-Drug Sx	Drug Sx	Alcoholics	Normals
Father	Mean	5.10	5.00	4.70	5.20
	S.D.	1.19	1.49	0.94	0.20
Son	Mean	6.30	5.40	4.70	4.70
	S.D.	1.16	1.43	1.06	0.48

*Based upon Hollingshead ratings (see Appendix A).

pational status equal to their fathers'. The Alcoholics achieve, as a group (and this is confirmed by seven of ten individual comparisons), virtually the identical occupational status as their fathers. Finally, it may be seen that the Normals actually improve upon their fathers--a finding that is true for all ten Ss. These observations are particularly noteworthy since they are independent of Phillips Scale ratings.

Table IV presents the educational data for the three patient groups, reported in terms of years of schooling completed, rather than on the basis of Hollingshead's index values. It is presented only so the reader may judge the educational level of these groups in more conventional terms than Hollingshead's. The educational levels of the groups are of the same rank order.

Table IV

EDUCATIONAL LEVEL OF PATIENT GROUPS
(In Years)

	Non-Drug Sx	Drug Sx	Alcoholics
Mean	10.50	11.30	9.90
S.D.	3.54	2.63	1.85
Median	11.50	12.00	10.50
Range	4-17	6-16	7-12

Table V shows the data on the length of hospitalization for the two groups of schizophrenic patients. It is clear that these groups vary considerably in this regard, although the mean difference in length of hospitalization

Table V

LENGTH OF HOSPITALIZATION:
SCHIZOPHRENIC GROUPS
(In Months)

	Non-Drug Sx	Drug Sx
Mean	12.30	13.60
S.D.	14.20	19.90
Median	7.40	5.30
Range	0.13-46.70	1.60-65.80

is just a little over one month.[4] The two groups seem comparable on the variable of length of hospitalization.

Table VI presents the Phillips Premorbid ratings earned by the two groups of schizophrenic Ss, computed both by subscale and by total score. It is clear

Table VI

PHILLIPS PREMORBID RATINGS:*
SCHIZOPHRENIC GROUPS

		Scale					
		A	B	C	D	E	Total
Non-Drug Sx	Mean	5.10	4.90	5.30	4.70	5.00	25.00
	S.D.	.74	.88	.82	.48	.47	1.88
Drug Sx	Mean	4.40	3.60	4.60	4.20	4.20	21.00
	S.D.	.96	1.07	1.07	1.03	.63	2.40

*From Phillips (1953).

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[4] The means (and other statistics) of these two groups would be even less disparate were it not for one of the Drug patients whose length of hos-

again that the Non-Drug group differs from the Drug group. The Non-Drugs earned a higher score on every subscale; thus, while every subject in both groups is definitely a Poor, the premorbid adjustment of the Drug group is rated systematically as more adequate.[5] The subscale upon which the differences between groups is most marked is subscale B. This scale relates to the social aspects of the sexual life of the patient during adolescence and the period immediately beyond. Assuming the reliability of the subscale, this suggests that, while both groups have been inadequate in heterosexual relationships during adulthood, this inadequacy was manifested at an earlier age, during adolescence, in the Non-Drug group relative to the Drug group. This is exemplified by one of the Drug group patients whose social history (an unusually complete one) showed that he had dated quite actively during adolescence, with frequent heterosexual experiences, but that this activity pattern was rather suddenly discontinued and was not resumed subsequently. None of the Non-Drug patients had a comparable history.

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pitalization was far beyond that of any other patient in either group (five years, eight months), and a patient in the Non-Drug group whose length of hospitalization was far less than for any other patient in either group (four days). The rationale for including these two, over and above the fact that they satisfied all of the criteria mentioned for subject selection, was the unusual pattern of their hospitalizations. In the case of the first, even though he had been hospitalized often, he had remained out for some time prior to the hospitalization during which he was run in the study, and most of his previous hospitalizations had been short ones. The latter S was one of the few Non-Drug patients who previously had never received drug therapy. At the time he was used in the present study he had just been admitted to the hospital for the first time and was under observation prior to receiving medication.

[5] The presence or absence of drugs, of course, could have no causal influence on the variable of premorbidity, and the question arises as to whether something about the premorbid history plays a part, however indirect, in determining which patients will remain on drugs, and which will be taken off medication for a period. This issue and the potential influence it may have exerted on the data are reviewed in greater detail in Chapter VII.

Chapter IV

APPARATUS

The apparatus used in this study fell into three functional groups. These were designed--

(1) to create in S a differential perception of two mothers--one characterized by dominance and rejection, and the other by warmth and acceptance--by endowing two initially neutral photographs of women with such attributes;

(2) to determine the extent to which S had perceived the characteristics with which these women had been endowed;

(3) to elicit behavior from S, in the presence of these women, which could reflect the presence or absence of conforming behavior in regard to mothers.

Each group of apparatus will be described in some detail below. The more complex information regarding technical material and construction has been relegated to several appendices.

Apparatus for Attribution of Maternal Attitudes

A tape recorder was used to play for S a purported interview with two mothers. The interview, which was made to sound spontaneous, was actually a prepared script. During the interview E read aloud to each of the mothers a series of child-rearing attitudes and asked each mother to respond by indicating whether or not she agreed with the attitude read. As each mother was heard to interact with E on the tape recording, her picture was projected on a screen at the front of the experimental room, and a box next to the screen was illuminated to identify the mother who was speaking. The tape-recorded interview was fed to S through a set of earphones, and was monitored by E with another earphone. Throughout the playing of the tape, S's attention was maintained by requiring him to manipulate an apparatus which, he had been told, governed the appearance of the mothers' pictures on the screen. The important details of each of these pieces of apparatus are given below.

(1) Tape recorder: The recording unit used was an Ampex 601 Magnetic tape recorder with an Ampex 620 amplifier-speaker.

(2) Interview: The interview as it was played to S was a synthesis of a number of separately derived or constructed parts. Statements were selected from the literature on parent-child relationships in schizophrenia, the voices used were carefully equated, and the answers given to the attitude statements were designed to heighten certain maternal attributes.

(a) Attitude statements: Of the twenty statements of child-rearing attitudes used, ten reflected patterns of dominance and ten were statements having to do with rejection. The items were selected on the basis of their high factor loadings on dominance and

rejection as determined in a previous study by Shepard and Guthrie (1959), or because they maximally differentiated mothers of Poor premorbid schizophrenic patients from those of Normals (Garmezy et al., In press), or for their salience in describing the type of mother that has been posited as characteristic in the family of the schizophrenic patient (Schaefer and Bell, 1958). These items appear in the script in Appendix D; the citations of their original sources appear in Appendix E.

(b) Responses to statements of attitudes: The negative mother responded to nine of the ten statements directed to her in a way which depicted her as domineering and cold, with a single reversal on one item to prevent her from appearing too obviously contrived. An opposing pattern was used for the responses of the positive mother. The script was arranged so that each mother signified agreement with five of her ten items, and disagreement with the other five, while maintaining her overall pattern of a positive or negative mother. The number of words spoken, and the total time spoken by each mother were equated. The responses given by the mothers appear in the tape script reproduced in Appendix D.

(c) Voices: In keeping with the Southern regional background of the Ss used, it was decided to accentuate the cue value of the stimulus figures by using women whose speech showed Southern origins. It was also essential that the voice qualities of the two respondents be as nearly alike as possible so that the differential impressions gained by S would be based solely on the interview content. The two voices used were selected on the basis of a pilot study, the details of which appear in Appendix F. In making the actual tape recording,

care was taken to equate the loudness level at which the responses were given; this control procedure also appears in Appendix F.

(3) Pictures of mothers: The two pictures used to represent the mothers interviewed were selected from a pool of six pictures used in a previous study by Alvarez (1957). These pictures were originally selected from a much larger pool on the basis of minimal differences in age, facial expression, likelihood of eliciting affective responses and the like. From these six, two were chosen that were judged to be least different. One of them was arbitrarily designated "Mrs. R," the "positive" mother, and the other "Mrs. T," the "negative" mother. Slides were made of the photographs, so that they could be projected on a screen, and could also be illuminated from behind in several pieces of apparatus described below.

(4) Slide projectors: Two slide projectors (Revere Model P-888) were used--one to project the images of the mothers on a screen, and the other to project the statements with which the mothers were asked to agree or disagree.

(5) Screen: The screen used was a Daylite beaded screen; it was located approximately eight feet in front of S.

(6) Light boxes: These were two boxes containing 6w. bulbs, and having a facing of Insuroc. On the face of each was the name of one of the mothers, which was illuminated as her picture was projected on the screen.

(7) Earphones: A pair of Koss stereophonic earphones (Model SP-3) was used to feed to S the content of the tape recording. These served the dual purpose of screening out extraneous apparatus and hospital noise,

and of making it difficult for S to avoid listening to the tape should he have been motivated to do so.[1]

(8) Stimulus Identification Panel (SIP): This was the apparatus designed to keep S's attention focused upon the mothers during the playback of the tape recording. It consisted of a panel mounted in front of S and tilted toward him at a slight angle. Two 3-1/4" x 4" lantern slides of the mothers were inserted in fixtures on the face of the panel, and could be illuminated from behind. Below each picture was a label identifying the picture as "Mrs. R" or "Mrs. T," and below each label was a push-button. The task of S was simply to push the button under the appropriate picture each time he was told to whom E had addressed a question. The effect of S's depressing the button was to illuminate the mother's picture on the panel, project her picture on the screen, and light the box next to the screen that contained that mother's name. Further details of this apparatus and its construction appear in Appendix G.

Apparatus for Measuring S's Perception of the Mothers

The scale used to measure S's perception of the mothers was a modified version of Williams's PAIS test (1958). This scale consists of 32 statements,

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[1] It was found that these earphones, which are heavily padded with foam rubber, were quite effective for the purposes mentioned. However, they are an extremely sensitive set, which, it developed, picked up by induction and amplified the surges of current resulting from activating the switches on the other pieces of apparatus. Consequently, the amplifiers from a less sensitive set of Navy earphones were substituted for the originals, while retaining the foam rubber casing.

all descriptive of mothers; the items may be grouped in four categories of eight items each, implying varying combinations of high and low tendencies to wield authority, and high and low tendencies to manifest loving behavior. Williams designed this scale to be used by children in rating their parents, the result being that the scale may be used for adults who have had minimal education. As originally devised, each statement was written in the form, "My mother is nice to everybody," to which the child responded by checking either "Yes" or "No." As used in the present study, the scale was modified so that it could be used for rating both mothers, and so that the answers "Neither" or "Both" were not valid. Thus the form of the statements was changed to interrogative, and was presented as "Which of these mothers is . . . ?" A specimen of the modified scale appears in Appendix H.

Apparatus for Measuring Conformity Behavior

S was asked on a number of trials to indicate his preference for one of two jobs shown to him on cards. Under one condition of the procedure this was done without the presence of either mother. After S had been introduced to the mothers by listening to the tape recording, he was again placed in the occupational choice situation, this time, on some trials, in the presence of the negative mother and, on others, in the presence of the positive mother. On the trials on which one of the mothers was present, S was told which of the jobs had been preferred by her prior to being asked which one he preferred. The important elements of this group of apparatus were the Occupational Choice Cards and the Occupational Choice Apparatus used to display them.

(1) Occupational Choice Cards: This was a series of fifty-four

5" x 8" cards to which had been pasted two pictures of men working at different but similar jobs. The pictures had been selected from the California Picture Interest Inventory (CPII) (Weingarten, 1958), and represented each of the six major dimensions of occupations in the inventory: Mechanical, Business, Scientific, Natural, Interpersonal Service, and Aesthetic. The pair of pictures placed on any given card was drawn from the same occupational category so as to make the issue of choice a more ambiguous one. Thus, the probability of choosing either job on any given card, over a large number of Ss, was contrived to approach .50. The schedule of appearance of the 54 cards was as follows: (a) ten cards presented before the tape, without knowledge of the negative mother's preference (this phase was described to S as an "introduction" to the task); (b) thirty cards administered after the tape, the last ten of which were repeats of the ten administered before the tape (all of these thirty were responded to by S after he had learned of the negative mother's preference); and, finally, (c) fourteen additional cards, responded to after learning the preference of the positive mother.

All occupational choice cards had had a rectangular piece cut out of their centers to permit them to be placed over a response lever on the Occupational Choice Apparatus (described below), and to be held in place as S signified his preference. The rationale for using these stimuli, the order of their presentation, and the identification of each picture in terms of its original designation in the CPII appear in Appendix I.

(2) Occupational Choice Apparatus (OCA): This apparatus was designed to allow S to indicate his job preference by manipulating a simple two-position response lever. It was used in two different ways in the

study: (a) as a means of indicating preference, as in Figure 3, and (b) again as a means of indicating job preference, but with the back screen removed, as in Figures 4 and 6. When the screen was removed, a slide, containing a picture of one of the mothers, could be inserted in a metal frame mounted on the vertical panel. When used in this way, the slide was illuminated at all times. Two Insuroc arrows were imbedded in the horizontal panel, each pointing from the base of the mother's picture to one of the jobs pictured on the cards. A switch on E's control panel governed which of the arrows would be illuminated on any given trial to indicate the mother's preference. The arrows and the switch lever were connected to a Standard Clock Timer in such a way that illumination of either arrow activated the timer, and also that S's lever response in either direction automatically stopped the timer. Thus, on each trial E was able to note both the direction and latency of response. The preferences of the mothers were randomly distributed over all trials, with the one condition that in each block of ten trials a given mother responded five times to the left and five times to the right. The technical details concerning the construction and dimensions of the OCA appear in Appendix J.

Chapter V

PROCEDURE

The procedure followed in this study was rather complex, in that a sequence of several discrete and dissimilar tasks was utilized. In the interest of clarity, therefore, what follows will be a brief outline of the procedure, aimed at providing some continuity for the more detailed description of the procedure which appears subsequently.

1. S signified his job preference on ten trials with the OCA.

2. S listened to the tape recorded interview with the positive and negative mother, during which time he was required to manipulate the SIP, designed to maintain S's attention.

3. S answered the 32 items of the PAIS test, ascribing each trait to one or the other of the mothers he had heard in the tape recorded interview.

4. S received thirty additional trials with the OCA, each trial accompanied by knowledge of the negative mother's job preference. Ten of these were repeats of the original ten cards to which S had been exposed.

5. S received 14 final trials on the OCA, each of them accompanied by knowledge of the positive mother's job preference.

Each S was seen individually on the wards before being brought into the experimental situation. E introduced himself and told S that he was interested in the sorts of jobs S might recommend for a boy who was just finishing high school and looking for his first job. S was then asked if he would help E in this task, and, when S had given his consent, he was brought to the experimental room.

Upon entering the room S was shown all the equipment to be used and was told the following:

> "Mr. -----, as you can see I have a lot of equipment here. There are some slide projectors that I'll be using to show you some pictures later, and this is a tape recorder. Do you know what a tape recorder is? Good. Well, I'm going to play a tape for you a little later on. If you'll have a seat right here I'll explain to you just what I'm interested in."

S was seated in front of the OCA. (See Figure 3.) E continued:

> "Now, as I've already told you, Mr. -----, I am interested in what it is that makes a young man, just finishing high school, choose the sort of job he goes into. I have a feeling that a young man in this position gets advice from a lot of different people--his parents, his relatives, and other people in his community who have had experience at various kinds of jobs. So what I've been doing is talking to a lot of different people and asking them what sorts of jobs they would recommend for such a young man. And that is what I'd like to do with you this afternoon. Now let's assume that this young man is able to do any of these jobs, and the question is just which of them you would recommend.
>
> "I have here some cards that I've made up. [E placed card 1 over the choice lever.] Each of them shows two men, working at two different kinds of jobs. In each case I simply would like you to tell me which of the two jobs you would recommend. Now there may be some cards on which you wouldn't recommend either of the jobs, and others on which you would recommend both; in each case, though, I would appreciate it if you would pick one of the two jobs. Okay? Now how about this one, for example? This man is repairing a washing machine, and this one is wiring a house for electricity. Which of those two do you think you'd recommend? [S usually pointed to one or the other, at which point E said, "Okay," and then went on.]

Figure 1

S DURING PLAYING OF TAPED INTERVIEW
(POSITIVE MOTHER ON SCREEN)

Figure 2

E DURING PLAYING OF TAPED INTERVIEW
(NEGATIVE MOTHER ON SCREEN)

> "Now I think it will be easier, Mr. ------, if, each time you make a choice, you simply push the lever toward the left or right, toward the job you would recommend. All right?"

S was then encouraged to push the lever toward the job he had chosen, the card was removed, and replaced with the next one.

Using this procedure, S was shown the first ten cards of the series. For each of the ten, E identified the two jobs, using the briefest descriptive name possible. In almost every case, a single descriptive word sufficed (e.g., bricklayer, roofer). In those cases where the job title might not be recognized by S, a simpler, though longer, description was used (e.g., rather than "optician," he said "a man who makes glasses").

At the end of the series of ten cards E said:

> "Good, Mr. ------, I think you have the idea. I'm going to want to show you some more of these cards, but before I do, let me tell you what else we are going to do. As I said before, I think that when a young man is looking for his first job, he probably gets advice from a lot of different people. I think, though, that the advice he pays the most attention to is the advice he gets from his parents. So I've been talking to a lot of different parents of boys who are just finishing school, and asking them, just as I've asked you, what sorts of jobs they would recommend. As I've talked with these parents I've asked them a lot of different things about the family, such as their age, how much income there is in the family, how they feel about raising children, and so on. And I've found that some of these things play an important part in what sorts of jobs these parents will recommend. For example, if the parents are elderly, they may pick certain kinds of jobs, and not others; if it's a wealthy family they may pick some jobs and not others--and the way the mother feels about raising children may make her pick certain kinds of jobs and not others.
>
> "Well, I've made a tape recording of an interview that I had with two of these mothers. I want to play it for you now, and ask you to listen carefully to it, because afterward I'm going to do two things. I'm going to ask you what your general impression is of these two mothers--you know, what are they like, are they pretty much the same, or are they different from each other--and then I'm going to show you some of the jobs that they recommended, and ask you whether you would agree with them--pick pretty much the same sorts of jobs--or disagree with them and perhaps pick different sorts of jobs. Okay? Now that may sound a little complicated right now, but I'll explain it as we go along and I'm pretty sure you'll find it's easy."

E then removed the OCA and replaced it with the SIP. He then said to S:

> "Here are pictures of the two mothers that I interviewed, Mrs. R and Mrs. T. [E pointed to each picture and to the nameplate for each.] Now let me describe to you how this will work. On the tape recording you'll first hear me introduce myself and tell the mothers what I'm interested in. Then you will hear me ask each of them a number of questions about how they feel about raising children. Before I ask each question I will show it to you on the screen up there, so you will have a chance to read it and know what we were talking about. The question will go off the screen and then you will hear me tell you which of the mothers I spoke to about that one. You will hear me say, 'The mother that I spoke to about that one was . . . ,' and then I will say, 'Mrs. R' or 'Mrs. T.' Now suppose I say 'Mrs. T.' What I want you to do then is simply to push the button under her picture. Can you do that now? [S pushed Mrs. T's button and her picture lighted.] As you can see, her picture lights here and her picture also shows on the screen. [E showed slide of Mrs. T.] So you will see Mrs. T here [E pointed to SIP] and there [E pointed to screen]. While her picture is up there you will hear her answer the question I asked of her. Then, when she has finished, her picture will go off, and you will see the next question on the screen. After you have read it, I will again tell you which mother I spoke to. Suppose this time I said 'Mrs. R.' What would you do? [S invariably pressed button for Mrs. R, and E showed slide for Mrs. R.] Good. And now Mrs. R is on the screen. Her picture will remain there while she answers the question.
>
> "Now, I think you can see that as you listen to the tape, and see these mothers on the screen, you will be able to get some idea of what they are like from the answers they give to the questions. And all you have to do is sit back, relax, and each time I tell you which mother I spoke to, push the button under her picture. Okay? Good.
>
> "Now the machines that I use to show you these pictures make quite a bit of noise, and you might miss some of the tape if you can hear them. So I have this set of earphones that you can use to listen to the tape. I will put them on, and you adjust them so that they feel comfortable for you. [E put earphones on S.] Do they feel all right? Okay, now I'll turn on the tape and you tell me if it's too loud or too soft, and I'll adjust it so it's just right for you."

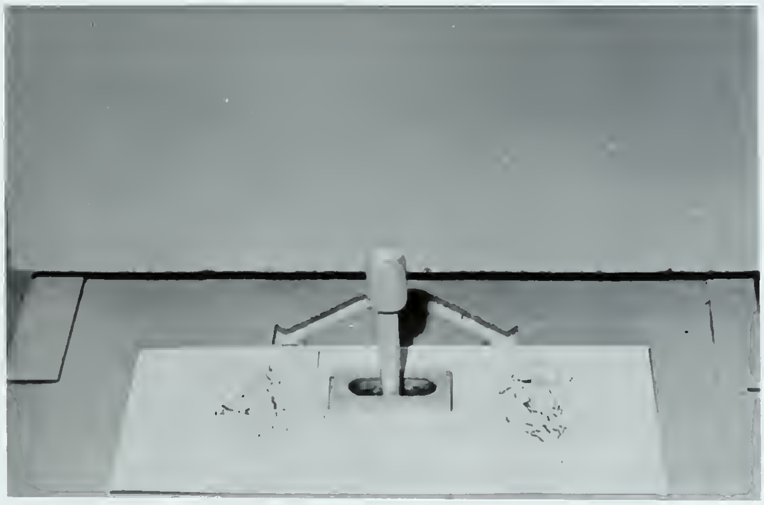
E turned on the tape and adjusted its volume for S. E then darkened the room and the tape was played through with just a single interruption. After Mrs. R had answered two items, and Mrs. T had answered two items, the tape was interrupted and E said to S, "I think you can see now that by listening to the answers these mothers give, you can get some idea of what they are like. Let's go on now." (See Figure 1.)

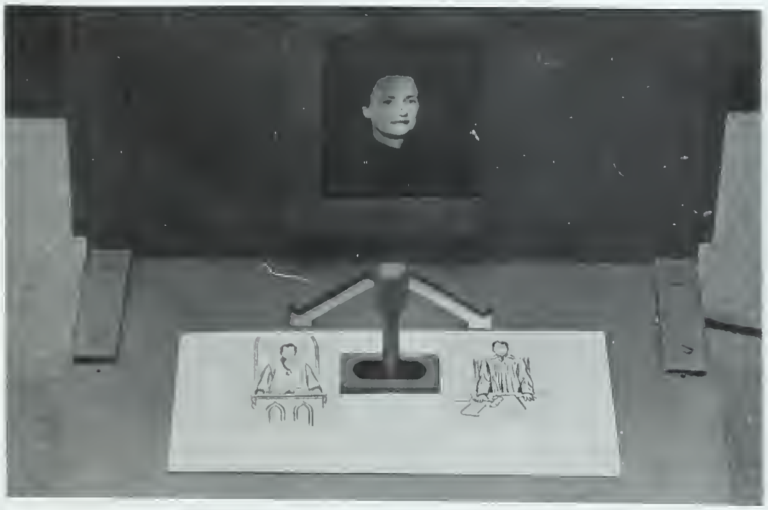
Figure 3

OCCUPATIONAL CHOICE APPARATUS AS USED ON PRE-TAPE TRIALS

Figure 4

OCCUPATIONAL CHOICE APPARATUS AS USED WITH MATERNAL STIMULUS





After the tape had been played, E removed the earphones and turned on the lights. He then asked S two open-ended questions: (1) "What did you think?" and (2) "Did you think these mothers were very much alike or very different from each other?" S was then asked which of the mothers he liked better as a person. S was told, "Let me put their pictures on the screen for a minute." Mrs R was shown on the left of the screen, above the box with her name on it, and Mrs. T on the right, above her name. E then pointed to each mother, spoke her name, and said:

> "I am going to read some descriptions of mothers in general. In each case I would like you to tell me which of the mothers is more like the description I've read. For example, which of these mothers thinks that everybody is nice to her and her family?"

When S gave his answer, E asked him to point to her picture, to insure that S could differentiate the two pictures. E then proceeded to ask all 32 questions from the PALS test.

When S had given his answers, E said:

> "Good. Now, Mr. ——, there's one more thing I'd like to do. I want to show you some of the jobs these two mothers recommended for a boy who's just finishing high school."

E then removed the SIP and replaced it with the OCA. Now, however, the upper panel of the board was uncovered and a lantern slide of Mrs. T was inserted in the slide holder. (See Figure 4.) E said: "Let's start with Mrs. T," and, placing the apparatus in front of S, E lighted Mrs. T's picture at the same time.

These instructions then followed:

> "This time when I put a card on the board, one of these arrows will light. The arrow that lights will point toward the job that Mrs. T recommended. Then I simply want you, as before, to push the lever toward the job that you would recommend. If you push the lever toward the lighted arrow, it means you would agree with Mrs. T, and pick pretty much the same sort of job. If you push the lever the other way, it means you would disagree, and pick a different job instead. Okay?"

Figure 5

E'S CONTROL APPARATUS

Figure 6

S ENGAGED IN OCCUPATIONAL CHOICE TASK

E then showed cards 11-15, saying, "Here we have a man doing -----, and here a man doing -----. Mrs. T recommended -----." Coincident with the last word the arrow was lighted, pointing toward the appropriate occupation, and the timer was activated. E asked, "Which would you recommend?" When S made his choice by pushing the lever toward the preferred occupation, E made a note of both the direction and latency of the response. After card 15, E said, "I think you will recognize most of these jobs, Mr. -----, so I won't describe them all. But if you have any question about them, ask me and I'll tell you what they are."

This procedure was then followed, without further verbalization from E, through to card 40, except for reiterated mention on cards 10, 15, and 20 that Mrs. T had chosen -----. This was done in order to insure that the instructional set would be maintained. (See Figure 6.)

After card 40, Mrs. T's picture was turned off, removed, and replaced by Mrs. R's. E said to S:

> "Now I'd like to show you some of the jobs that Mrs. R recommended. It will be exactly the same here—the arrow will point toward the job recommended by Mrs. R."

Cards 41-54 were then shown to S, in a manner identical with the procedure used for Mrs. T.

After card 54, E said, "Good," and shut off the apparatus. E then thanked S for his cooperation, and asked if he had any questions or comments. Note was made of these, and S was asked whether he felt there was any difference between the kinds of jobs Mrs. R had picked compared with Mrs. T, and whether he felt he tended to agree more with one mother than with the other. After several minutes of conversation S was allowed to return to or was accompanied to his ward.

Chapter VI

RESULTS

The four major dependent variables of the study have been described in Chapter II. The manner in which the empirically derived measures were utilized in estimating those variables is elaborated below.

Perception of the Mothers

The measure used in determining the accuracy of S's perception of the mothers to whom he had been exposed during the tape-recorded interview was the ascription to those mothers of the PAIS test items. The 32 items in this test are equally divided among four subscales: eight items describing a mother who is highly authoritarian, but at the same time loving and democratic; eight items describing a mother who is highly authoritarian, and unloving and rejecting, as well; eight for a mother who is lacking in authoritarian characteristics, and is, at the same time loving and democratic; and, finally, eight items descriptive of a mother who is neither authoritarian nor loving. It was assumed in using the test that S would utilize both of the dimensions of au-

thority and love in rating the mothers. In examining the data from the PALS test, however, it was found that the subscales were not responded to by any of the groups of Ss in a completely differentiated manner. The items, for the most part, were treated as if they varied only along the single dimension of presence or absence of loving characteristics. The analysis of the PALS test data, therefore, is presented with emphasis upon the loving dimension.

Table VII presents the mean number of loving and unloving items ascribed to the positive and negative mothers by the four groups of Ss.

Table VII

ASCRIPTION OF LOVING AND UNLOVING ITEMS: PALS TEST

		Negative Mother		Positive Mother	
		Loving Items	Unloving Items	Loving Items	Unloving Items
Non-Drug Sx	Mean	2.90	5.20	5.05	2.80
	S.D.	1.79	1.88	1.79	1.88
Drug Sx	Mean	1.80	6.20	6.20	1.80
	S.D.	2.33	2.01	2.33	2.01
Alcoholics	Mean	1.65	6.05	6.35	1.95
	S.D.	1.57	2.21	1.57	2.21
Normals	Mean	1.05	6.50	6.95	1.45
	S.D.	0.88	1.19	0.88	1.19

The data from the PALS test were subjected to a Lindquist Type VI analysis of variance (Lindquist, 1953, Chap. 13).[1] The "between" factor was the four

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[1] The use of a Type VI analysis for these data was somewhat unorthodox, in that several of the sums of squares would necessarily have a zero value. The sums of squares for Groups and for Scales had this property; Groups, because the "marginal sums" for all individuals in all groups was 32, the total number

groups of Ss, and the two "within" factors were the subscales of the PALS test, and the two mothers. The important question to be answered in the analysis was whether or not there was a significant triple interaction, i.e., did any of the groups, in ascribing items from a given subscale to a given mother, differ from other groups in that ascription. Should such an analysis have resulted in a significant triple interaction it would have suggested that the groups were dissimilar in the way in which they perceived one or both of the mothers; this result could be then related to the presence or absence of conformity to the mothers.

The summary of the Type VI analysis is presented in Table VIII. The only F ratio that achieved significance was the one based upon the interaction effects of Scale and Mother ($F = 54.42$; d.f. = 3, 108; $p < .001$). This outcome was entirely expected, and may be understood by reference to Figure 7. This Figure summarizes graphically Tables VII and VIII, and shows that most of the loving items were ascribed to the positive mother, while most of the unloving items were ascribed to the negative mother. It is this distribution of ascriptions that accounts for the significance of the Mother x Scale interaction.

The triple interaction effects were not significant, supporting the conclusion that all groups of Ss perceived the two mothers in a similar fashion,

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of items in the test, and Scales because, regardless of the mother to whom they were ascribed, there was a total of eight items on each subscale of the test. E was unable to locate any specific reference to this issue in the appropriate texts, but the advice of statisticians was that such an analysis would do no violence to the underlying assumptions of the Type VI analysis. Interest in the triple interaction prompted E to proceed with the three-dimensional analysis.

Table VIII

PALS TEST: SUMMARY TABLE OF TYPE VI ANALYSIS OF VARIANCE

Source	df	ss	ms	F	P
Between Ss	39	—			
Groups	3	—	—	—*	
error(b)	36	—			
Within Ss	280	2461.00			
Scale	3	—	—	—*	
Mother	1	1.80	1.80	1.62	
Scale x Mother	3	1382.80	460.93	54.42	< .001
Scale x Group	9	—	—	—*	
Mother x Group	3	3.40	1.13	1.02	ns
Scale x Mother x Group	9	118.40	13.16	1.55	ns
error(w)	252	954.60			
error$_1$(w)	108	—	—		
error$_2$(w)	36	40.05	1.11		
error$_3$(w)	108	914.55	8.47		
Total	319				

*ss = 0 (see footnote p. 46)

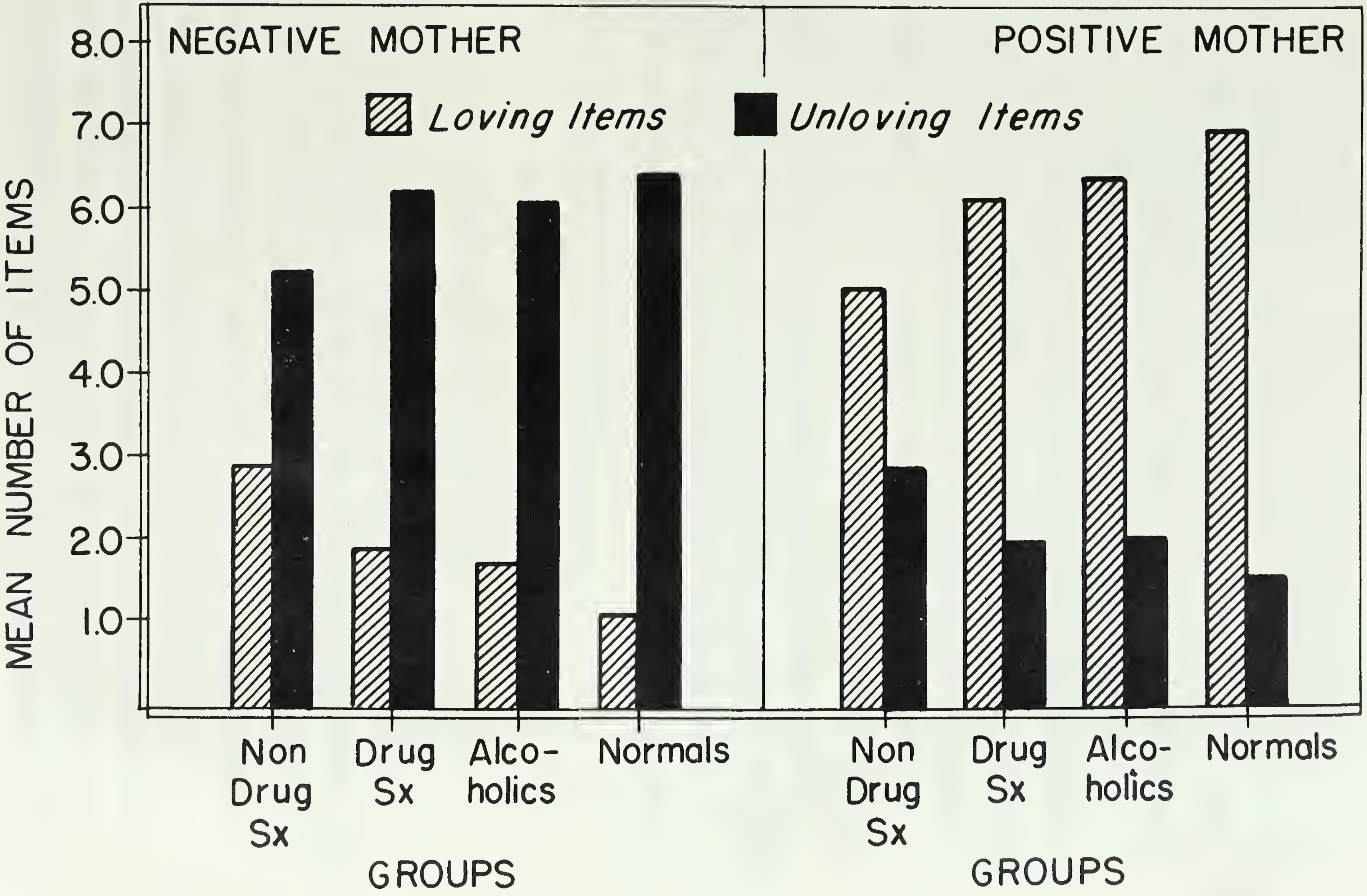
i.e., they ascribed approximately the same number of items to each mother on each subscale.

In spite of the lack of significant differences in perception of the two mothers, however, there is an interesting and consistent rank ordering of the groups in terms of the extremes to which they were willing to go in the ascription of positive and negative traits. The Non-Drug schizophrenic Ss

Figure 7

MEAN NUMBER OF LOVING AND UNLOVING ITEMS ASCRIBED TO THE POSITIVE AND NEGATIVE MOTHERS

MEAN NUMBER OF LOVING AND UNLOVING ITEMS ASCRIBED TO THE POSITIVE AND NEGATIVE MOTHERS



showed themselves to be unable or unwilling to ascribe consistently a given type of item to either mother. They did not describe the negative mother in completely unloving terms, nor did they describe the positive mother wholly in loving terms. The Normals, on the other hand, seemed to be able to do so with consistency. Failure to reach the extremes of trait ascription (8.0 or 0.0), in any group, is probably due to the manner in which authoritarianism and love are combined in some of the items. Some of the loving items, for example, are combined with such strongly authoritarian attributes as to be inappropriate for the positive mother as she is depicted in the tape recording (see Appendices D and H). In the same way, some of the unloving items are expressed in terms pallid enough so as to be inappropriate to the negative mother.

Finally it may be observed that the Drug schizophrenics and the Alcoholics are quite similar in their propensity for ascribing positive and negative traits to the two mothers; the scores for these two groups of Ss fall between those of the Non-Drug group and the Normals.

Conformity with the Negative Mother

The data used to evaluate the amount of conformity with the negative mother were (1) the proportions of agreement and disagreement with that mother, (2) the latencies of the responses of agreement and disagreement, and (3) the number of changes in occupational preferences on the repeat trials that were in agreement with the negative mother, as compared with disagreement.

Proportions of Agreement and Disagreement. The data on this variable were computed from the trials on the Occupational Choice Task after S had listened to the tape-recorded interview. S was given 30 opportunities for

agreement or disagreement with the negative mother, and then 14 opportunities with the positive mother. Of the 30 trials with the negative mother, the last 10 represented repeats of the pre-tape trials, and so were excluded from the analysis of agreement and disagreement responses. It was reasoned that, in most cases, the choices on these 10 trials would be influenced by the initial preference and thus would not provide an unequivocal expression of the amount of influence exerted by the mother. Therefore, a separate analysis of the repeated trials was made and this was compared with the pre-tape preference to study the role played by knowledge of the mother's choices on Ss judgments. (These results are discussed below.) The basic data on proportions of agreement with the negative mother, therefore, are based upon the 20 post-tape trials in which the negative mother rendered a preference choice prior to S's response; the basic data on agreement with the positive mother are based upon the 14 trials on which she appears.

In order to reflect the relative frequency of agreement and disagreement with each mother a composite score that reflected both responses was used. This composite score was based upon the "proportion of agreement responses" minus the "proportion of disagreement responses." Thus a positive score represented heightened agreement whereas a negative score represented a greater tendency toward disagreement with the mother. The group means for these agree-minus-disagree scores are presented in Table IX. The data in Table IX that are relevant to the negative mother were subjected to a simple randomized analysis of variance (Lindquist, 1953, Chap. 3).[2] The summary table for this analysis appears in Table X. These same data are presented graphically in

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[2] A similar analysis was made for the positive mother. It is presented below in the section which deals with the issue of cue specificity.

Figure 8.

Table IX

MEAN DIFFERENCES IN PROPORTIONS OF AGREEMENT AND DISAGREEMENT WITH NEGATIVE AND POSITIVE MOTHERS (PROPORTION OF AGREEMENT MINUS PROPORTION OF DISAGREEMENT)

		Non-Drug Sx	Drug Sx	Alcoholics	Normals
Negative Mother	Mean	25.34	- 6.67	0.00	6.67
	S.D.	23.48	23.09	24.74	10.42
Positive Mother	Mean	48.57	21.43	41.43	38.58
	S.D.	31.02	43.25	22.79	11.75

Table X

DIFFERENCES IN PROPORTIONS OF AGREEMENT AND DISAGREEMENT WITH NEGATIVE MOTHER (PROPORTION OF AGREEMENT MINUS PROPORTION OF DISAGREEMENT)

SUMMARY TABLE: SIMPLE RANDOMIZED ANALYSIS OF VARIANCE

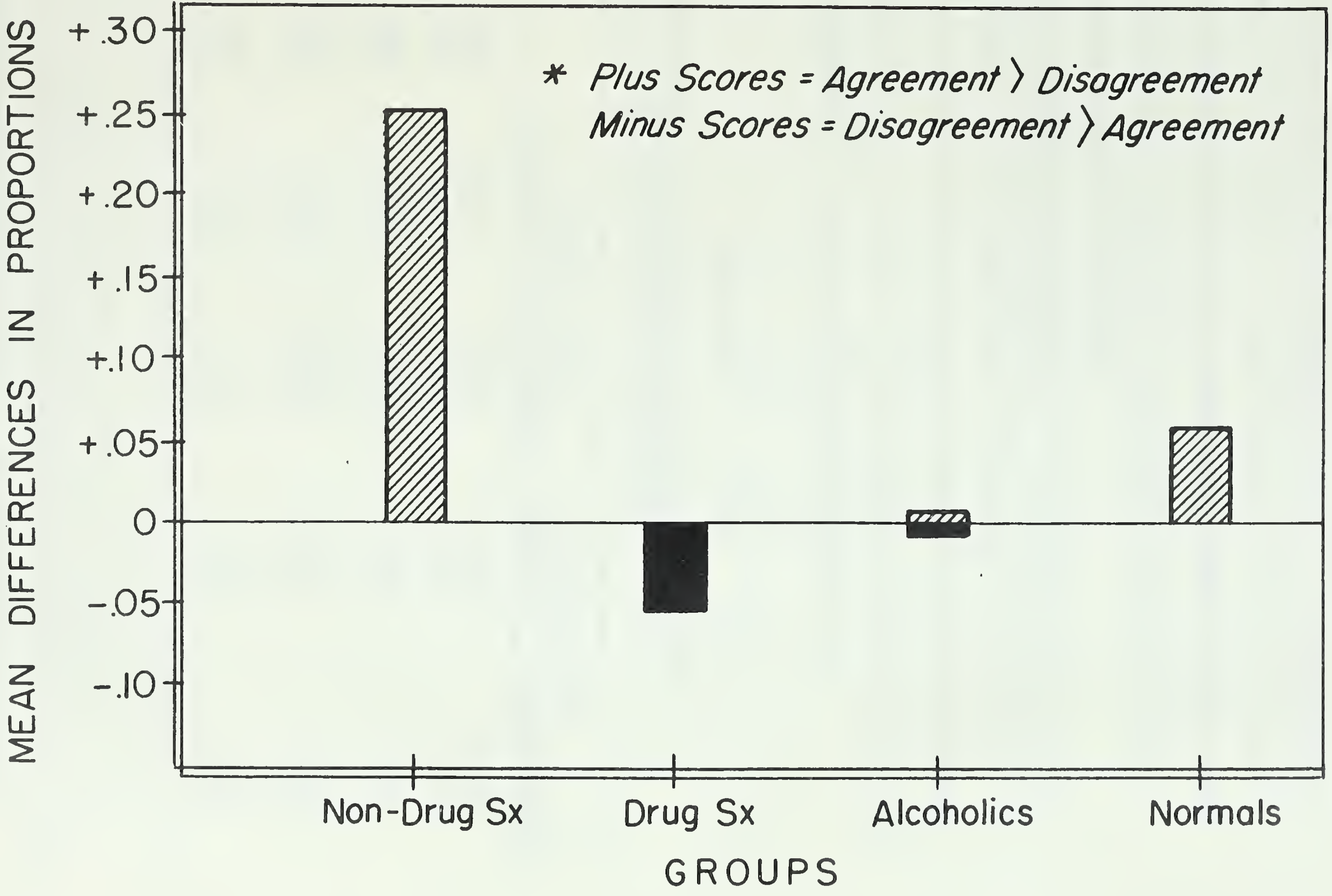
Source	df	ss	ms	F	P
Groups	3	5703.06	1901.02	4.17	$.01 < P < .025$
Within Ss	36	16427.09	456.30		
Total	39				

Figure 8 reveals that the Non-Drug schizophrenic Ss show the most agreement with the negative mother, whereas the Drug schizophrenic Ss show the least. The Alcoholic Ss showed levels of disagreement and agreement with the

Figure 8

MEAN DIFFERENCES IN PROPORTIONS OF AGREEMENT AND DISAGREEMENT WITH NEGATIVE MOTHER (PROPORTION OF AGREEMENT MINUS PROPORTION OF DISAGREEMENT)

MEAN DIFFERENCES IN PROPORTIONS OF AGREEMENT AND DISAGREEMENT WITH NEGATIVE MOTHER* (PROPORTION OF AGREEMENT MINUS PROPORTION OF DISAGREEMENT)



negative mother which did not differ from each other, while the Normal controls showed slightly more agreement than disagreement. The overall main effect (groups) for this analysis was significant ($F = 4.17$; d.f. = 3, 36; $p < .025$); the difference between the Non-Drug schizophrenics and all other groups was significant ($\underline{t} = 1.95$; d.f. = 36; $p < .05$). None of the other differences between groups was significant.

Latencies of Agreement and Disagreement. The latency of each response made in the Occupational Choice Task during the post-tape session was recorded. The mean latency for all responses of agreement and of disagreement, with both mothers, was then computed for each subject, and the means for each group were then obtained. These data are presented in Table XI.

Table XI

MEAN LATENCIES OF AGREEMENT AND DISAGREEMENT RESPONSES
TO POSITIVE AND NEGATIVE MOTHERS

		Negative Mother		Positive Mother	
		Agreement	Disagreement	Agreement	Disagreement
Non-Drug Sx	Mean	10.32	11.54	9.45	12.27
	S.D.	7.29	8.28	5.99	8.13
Drug Sx	Mean	4.20	5.20	3.98	4.43
	S.D.	1.76	2.87	2.40	2.56
Alcoholics	Mean	7.97	6.61	5.73	8.46
	S.D.	9.04	5.30	4.33	9.52
Normals	Mean	3.94	3.97	3.60	3.73
	S.D.	.85	1.06	1.49	1.05

These data were then subjected to a Lindquist Type VI analysis of variance (Lindquist, 1953, Chap. 13) in which Groups was the "between" factor, with Mother and "Agree-Disagree" "within" factors. The summary table for this

analysis is presented as Table XII. It shows three significant effects: (1) a significant difference between latencies of agreement as compared with disagreement responses ($F = 12.95$; d.f. = 1, 36; $p < .005$); (2) a significant difference between groups ($F = 4.04$; d.f. = 3, 36; $p < .025$); and (3) a significant "Agree-Disagree" by "Groups" interaction ($F = 2.84$; d.f. = 3, 36; $p < .05$). Figure 9 presents these three effects graphically. The significance

Table XII

LATENCY OF AGREEMENT AND DISAGREEMENT RESPONSES
TO POSITIVE AND NEGATIVE MOTHER

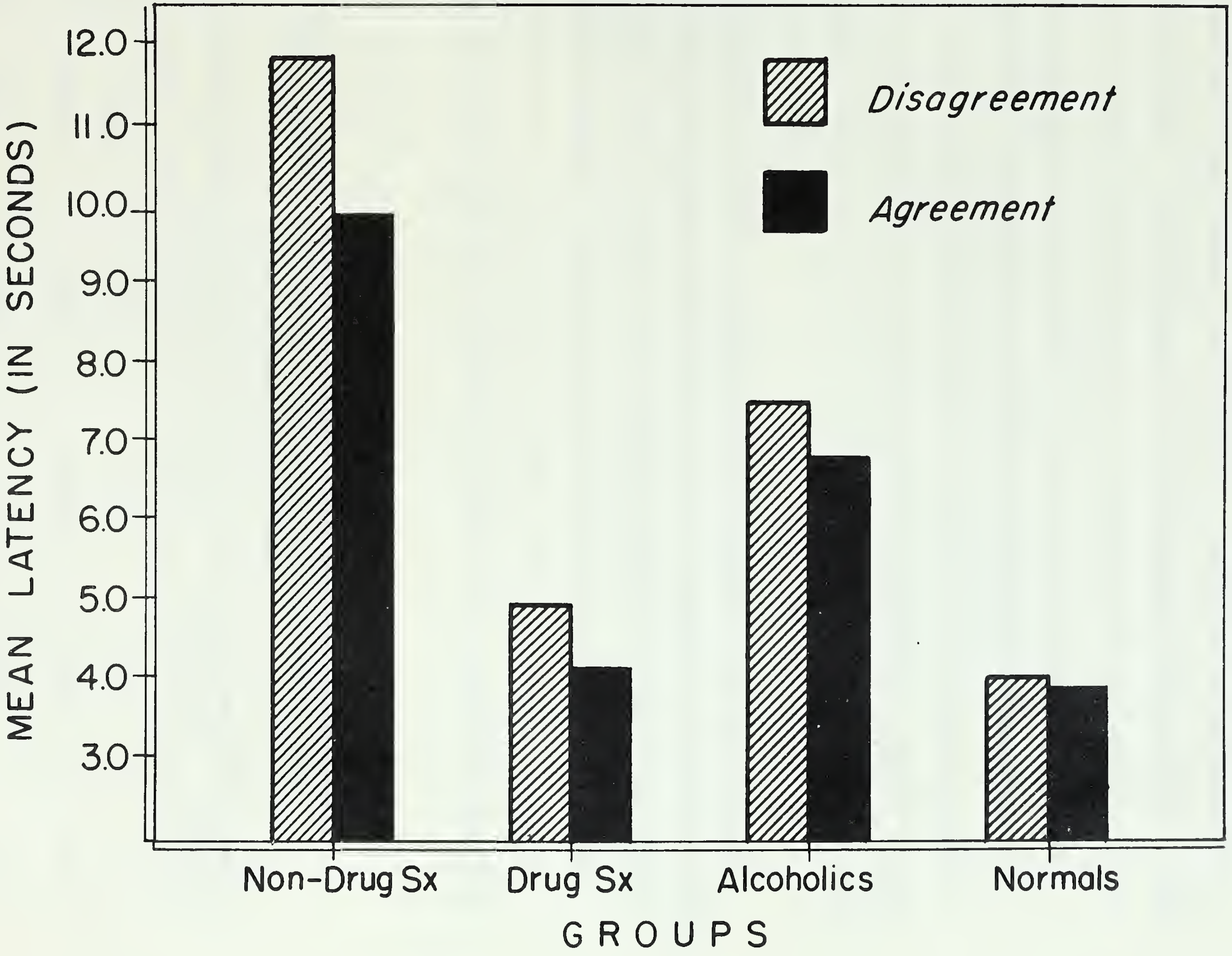
SUMMARY TABLE: TYPE VI ANALYSIS OF VARIANCE

Source	df	ss	ms	F	P
Between Ss	39	4958.41			
Groups	3	1248.79	416.26	4.04	$.025 > P > .01$
error(b)	36	3709.62	103.05		
Within Ss	120	641.41			
Mother	1	2.80	2.80	.59	ns
Ag-Dis	1	30.68	30.68	12.95	$< .005$
Mother x Ag-Dis	1	17.18	17.18	2.19	ns
Mother x Group	3	.95	.32	.07	ns
Ag-Dis x Group	3	20.15	6.72	2.84	$< .05$
Mother x Ag-Dis x Group	3	31.66	10.55	1.35	ns
error(w)	108	537.99			
error$_1$(w)	36	170.45	4.73		
error$_2$(w)	36	85.14	2.37		
error$_3$(w)	36	282.40	7.84		
Total	159				

Figure 9

MEAN LATENCY OF AGREEMENT AND DISAGREEMENT RESPONSES
(POSITIVE AND NEGATIVE MOTHERS COMBINED)

MEAN LATENCY OF AGREEMENT AND DISAGREEMENT RESPONSES (POSITIVE AND NEGATIVE MOTHERS COMBINED)



of the "Agree-Disagree" effect is accounted for by the consistency with which all groups show longer latency for disagreement responses in comparison with those of agreement. The significance of the difference between groups is contributed to mainly by the particularly long latencies of the Non-Drug schizophrenics; this holds true for both the agreement and disagreement responses. The significance of the interaction of "Agree-Disagree" and "Groups" is contributed by the greater difference between latencies for agreement compared with those for disagreement, in the Non-Drug schizophrenic Ss, relative to all other groups. This is the only such difference that is significant (t = 2.97; d.f. = 36; $p < .01$).

The data for latency of agreement and disagreement were converted into the same type of composite score that was used in analyzing the frequency data. In this case, since latencies for disagreement were for the most part longer than were the latencies for agreement, each S's speed of response for agreement was subtracted from his speed of response for disagreement. The group means based on these data are presented in Table XIII. These data were then

Table XIII

MEAN DIFFERENTIAL LATENCY OF AGREEMENT AND DISAGREEMENT RESPONSES WITH NEGATIVE AND POSITIVE MOTHERS (LATENCY OF DISAGREEMENT MINUS LATENCY OF AGREEMENT)

		Non-Drug Sx	Drug Sx	Alcoholics	Normals
Negative Mother	Mean	1.22	.99	-1.40	.30
	S.D.	3.23	1.70	3.82	.73
Positive Mother	Mean	2.80	.45	2.70	.13
	S.D.	4.55	1.59	5.14	1.32

subjected to a Lindquist Type I analysis of variance (Lindquist, 1953, Chap. 13), in which Group was the "between" factor and Mother the "within" factor. The summary table for this analysis is presented as Table XIV. The only significant effect in this analysis was the main effect of Mothers ($F = 4.29$; d.f. = 1, 36; $p < .05$). This effect arose out of the fact that latency differences in general, for all groups, achieve a higher positive level (i.e., greater latencies for disagreement) with the positive mother than with the negative mother. Figure 10 presents the latency data based on disagree-agree differences for the negative mother.

Table XIV

DIFFERENTIAL LATENCY OF AGREEMENT AND DISAGREEMENT RESPONSES WITH NEGATIVE AND POSITIVE MOTHERS (LATENCY OF DISAGREEMENT MINUS LATENCY OF AGREEMENT)

SUMMARY TABLE: TYPE I ANALYSIS OF VARIANCE

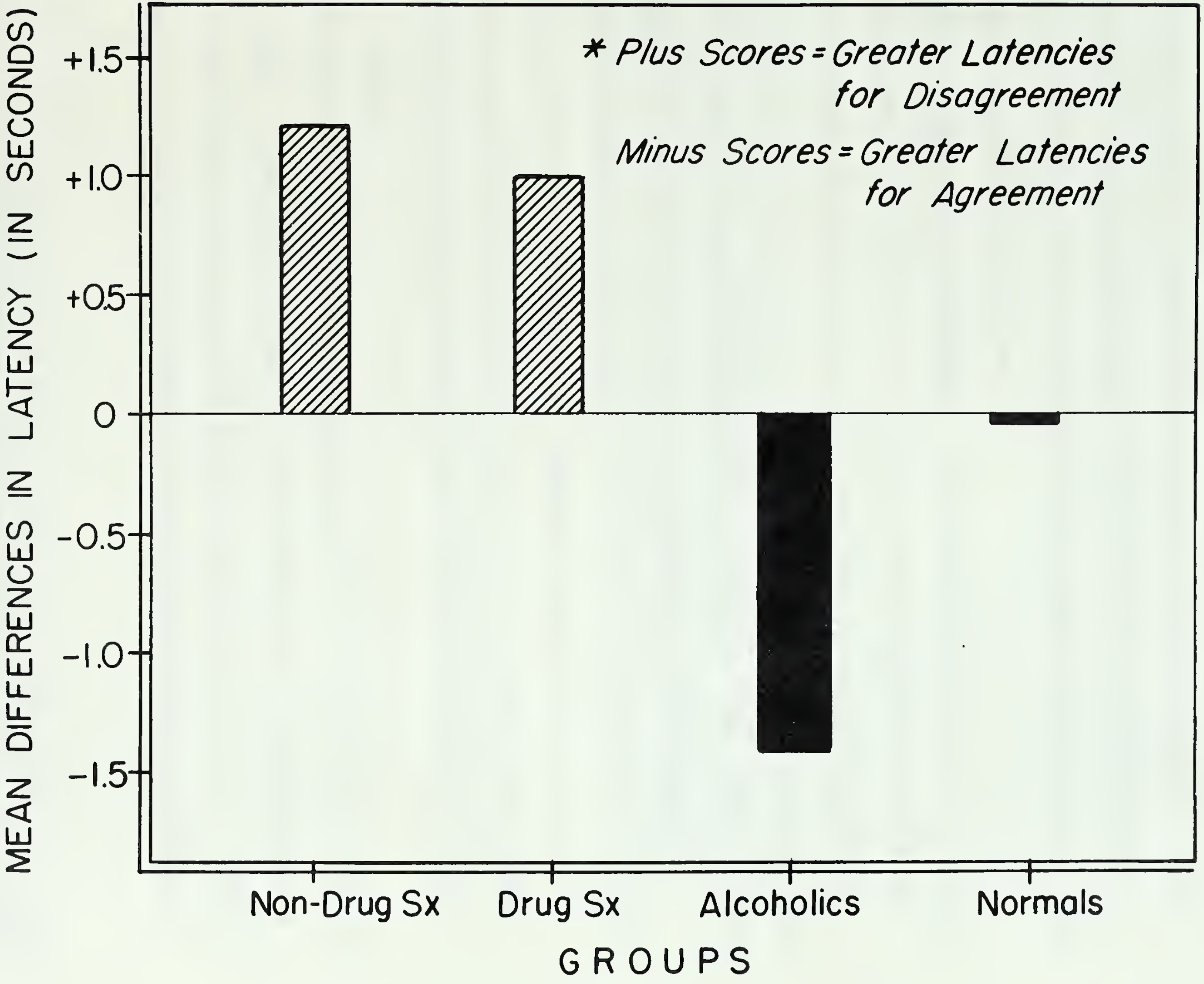
Source	df	ss	ms	F	P
Between Ss	39				
Groups	3	40.87	13.62		
error(b)	36	427.18	11.87	1.15	ns
Within Ss	40				
Mother	1	34.75	34.75	4.29	$.05 > P > .01$
Mother x Group	3	64.27	21.42	2.64	ns
error(w)	36	291.58	8.10		
Total	79				

Although the interaction effects of Mother x Group were not significant, it is of interest to compare the differences in group means for the negative mother (Figure 10). Non-Drug and Drug schizophrenics show themselves to be

Figure 10

MEAN DIFFERENCES IN LATENCIES OF AGREEMENT AND DISAGREEMENT RESPONSES WITH NEGATIVE MOTHER

MEAN DIFFERENCES IN LATENCIES OF AGREEMENT AND DISAGREEMENT RESPONSES WITH NEGATIVE MOTHER*



very much alike in the difference between latency of agreement and disagreement responses, in that both groups consistently take longer to disagree with the negative mother.[3] The Alcoholics, on the other hand, show themselves to be faster in disagreeing, as compared with agreeing with the negative mother; the Normals show virtually no difference in this regard. The differences, on this measure between both groups of Schizophrenics, when they are compared with the Alcoholics, approach significance.

Changes in Occupational Preference. Ten of the occupational choice items, those that were administered prior to the tape, were repeated in exactly the same manner as trials 31 to 40, after S had heard the tape recording of the purported interview with the mothers. When these paired choices were presented he second time they were accompanied both by the picture of the negative mother and by information regarding her choices of occupation. It was possible, therefore, for S, on these repeat trials, to do one of three things--(1) maintain the same preference pattern that he showed over the initial ten trials, (2) change his statements of preference toward greater agreement with those of the negative mother, or (3) change in the direction of disagreement with the negative mother.

A tally was made of the number of times each S in each group made either of the two types of changes in preference just described. A composite score which best conveys the intergroup and intragroup differences in these data, is represented by a "change-toward-agreement" minus "change-toward-disagreement"

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[3] This is in marked contrast to the differences between these two groups on their agreement-minus-disagreement proportions (see Figure 8). In this latter analysis Non-Drug schizophrenics had shown significantly greater agreement in comparison with Drug schizophrenics.

score for each subject. All scores were therefore summarized in this way, and Table XV shows the mean differential change on the repeat trials. These data were subjected to a simple randomized analysis of variance (Lindquist, 1953, Chap. 3). The results of the analysis, which were significant (F = 3.09; d.f. = 3, 36; $p < .05$), are presented in Table XVI. A test of the simple effects reveals that the number of changes toward agreement for the Non-Drug schizophrenics was significantly greater than for any other group (t = 2.6;

Table XV

MEAN DIFFERENTIAL CHANGE IN OCCUPATIONAL PREFERENCE ON REPEAT ITEMS
(CHANGE-TOWARD-AGREEMENT MINUS CHANGE-TOWARD-DISAGREEMENT)

	Non-Drug Sx	Drug Sx	Alcoholics	Normals
Mean	1.30	0.20	-0.30	0.10
S.D.	2.11	0.92	0.82	0.32

Table XVI

MEAN DIFFERENTIAL CHANGE IN OCCUPATIONAL PREFERENCE ON REPEAT TRIALS
(CHANGE-TOWARD-AGREEMENT MINUS CHANGE-TOWARD-DISAGREEMENT)

SUMMARY TABLE: SIMPLE RANDOMIZED ANALYSIS OF VARIANCE

Source	df	ss	ms	F	P
Groups	3	14.07	4.69	3.09	< .05
Within Ss	36	54.70	1.52		
Total	39				

d.f. = 36; $p < .01$), and that none of the other groups were significantly different from each other. Figure 11 presents these data graphically. It is interesting to note that the Non-Drug schizophrenics were closest to the Drug schizophrenics, that the Normals were closest to a zero shift, and that the Alcoholics were the only group that changed predominantly in the direction of disagreement. These results will be discussed in greater detail in the following chapter.

The Issue of Cue Specificity

This issue centers around the question of whether or not the negative mother represents a highly specific cue to the elicitation of conformity behavior in Poor premorbid schizophrenics. The data designed to answer this question were contained in the responses of the Non-Drug Poors to the positive mother, a stimulus figure quite different as regards her child-rearing attitudes. These data, in terms of their means have been presented in Tables IX and XIII. The summary presented in Table XVIII shows that there were no significant differences between groups in their relative tendencies to agree with the positive mother. Similarly, there were no significant differences in the latency data. (See non-significant Mother x Group interaction, Table XIV.) Graphic presentations of these data appear in Figures 12 and 13, demonstrating, respectively, the proportion and latency data for the responses to the positive mother. The values in both Figures are higher than the comparable data for the negative mother (see Figures 8 and 10).

Unfortunately, due to a lack of available subjects, the procedure used in presenting the mothers was such that the positive mother appeared after the

Figure 11

CHANGES IN OCCUPATIONAL PREFERENCES ON REPEAT ITEMS ("CHANGE-TOWARD-AGREEMENT" MINUS "CHANGE-TOWARD-DISAGREEMENT")

CHANGES IN OCCUPATIONAL PREFERENCES ON REPEAT ITEMS*
("CHANGE-TOWARD-AGREEMENT" MINUS "CHANGE-TOWARD-DISAGREEMENT")

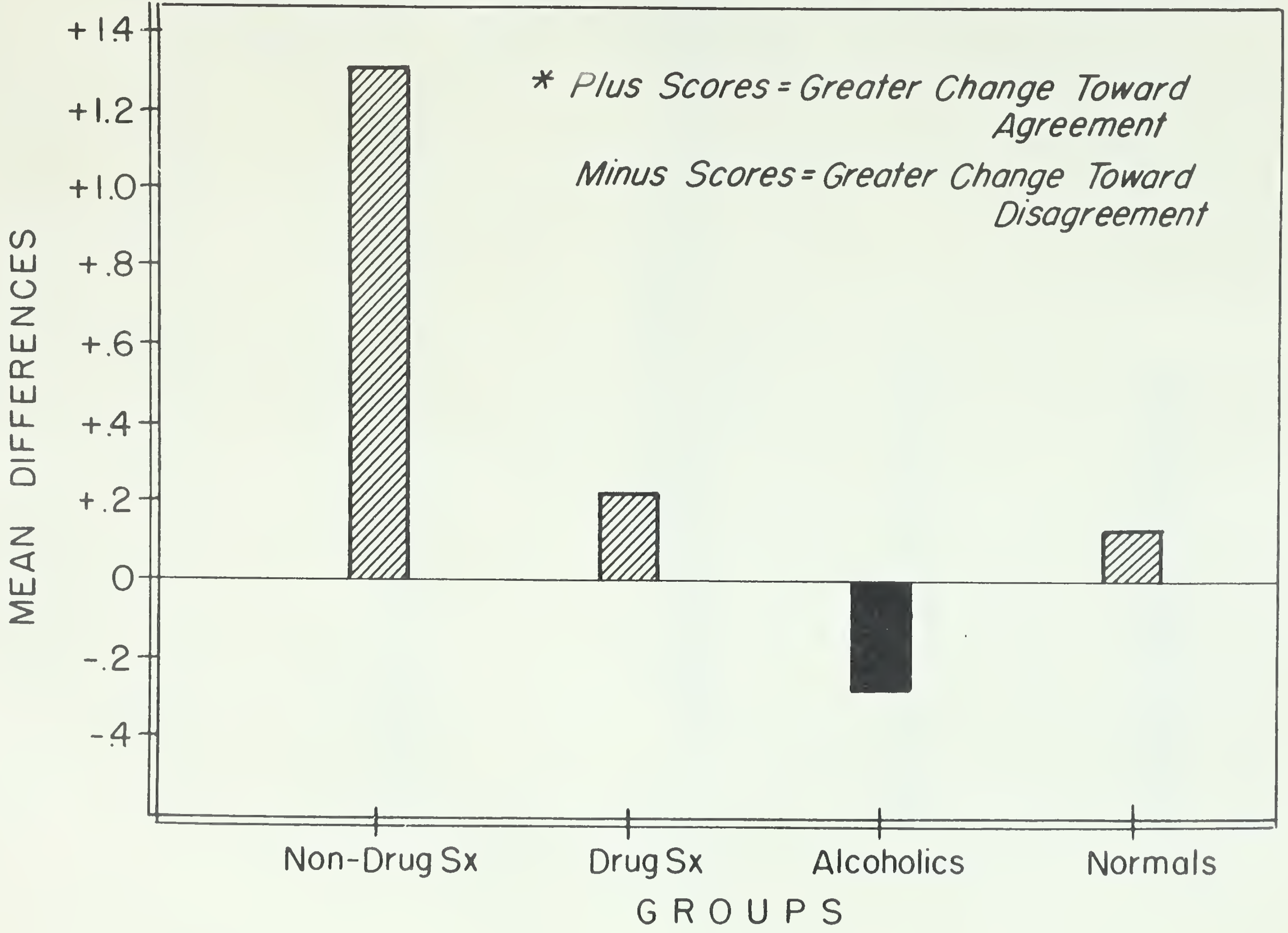

Figure 12

MEAN DIFFERENCES IN PROPORTIONS OF AGREEMENT AND DISAGREEMENT WITH POSITIVE MOTHER (PROPORTION OF AGREEMENT MINUS PROPORTION OF DISAGREEMENT)

MEAN DIFFERENCE IN PROPORTIONS OF AGREEMENT AND DISAGREEMENT WITH POSITIVE MOTHER* (PROPORTION OF AGREEMENT MINUS PROPORTION OF DISAGREEMENT)

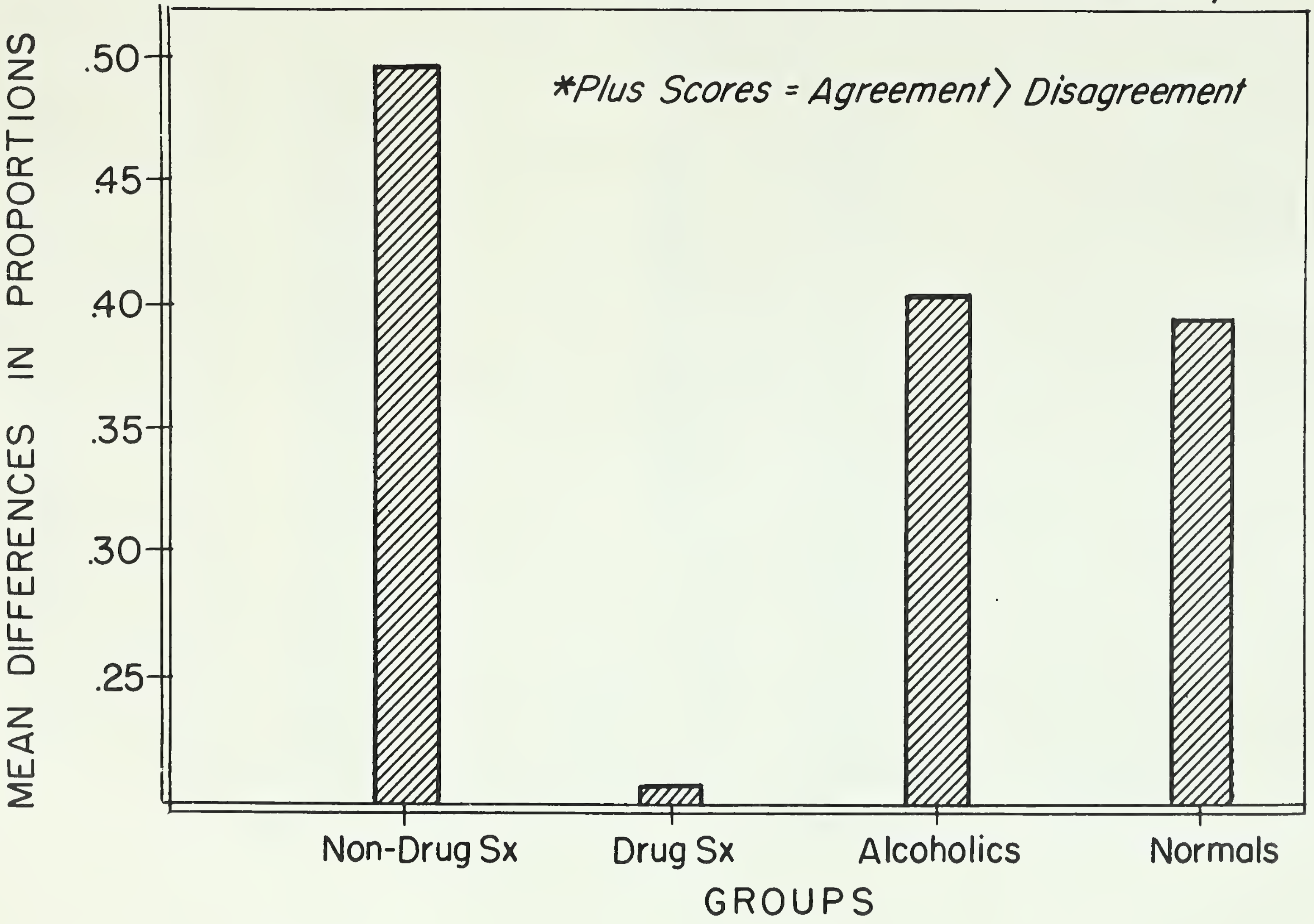

Figure 13

MEAN DIFFERENCES IN LATENCIES OF AGREEMENT AND DISAGREEMENT RESPONSES WITH POSITIVE MOTHER

MEAN DIFFERENCES IN LATENCIES OF AGREEMENT AND DISAGREEMENT RESPONSES WITH POSITIVE MOTHER*

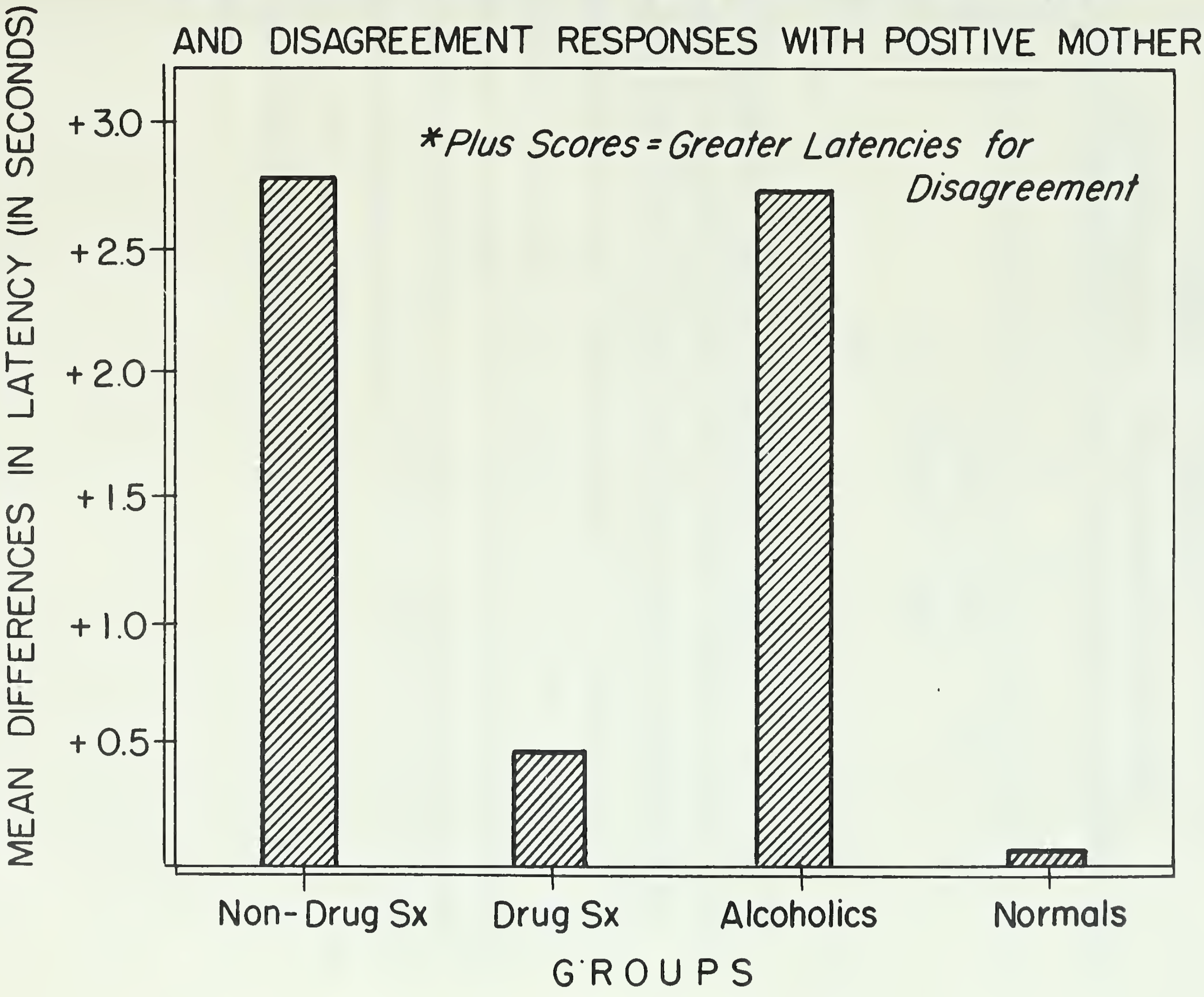

Table XVII

DIFFERENCES IN PROPORTIONS OF AGREEMENT AND DISAGREEMENT WITH POSITIVE MOTHER (PROPORTION OF AGREEMENT MINUS PROPORTION OF DISAGREEMENT)

SUMMARY TABLE: SIMPLE RANDOMIZED ANALYSIS OF VARIANCE

Source	df	ss	ms	F	P
Groups	3	3975.45	1325.15	1.52	ns
Within Ss	36	31409.04	872.47		
Total	39				

negative mother for every S. It is difficult, therefore, to separate in the responses to the positive mother several possibly confounded effects: (1) an increased tendency to agree with a mother who, solely by contrast with the negative mother, is a more attractive person, (2) a tendency to agree with a woman such as the positive mother regardless of the sequence in which she appears, or (3) some aspect of the jobs the positive mother was endorsing which made her intrinsically easier to agree with. Separation of these confounded effects is made even more difficult by the fact that there are no significant differences between any of the groups on the data presented in Figures 12 and 13. These confounded effects will be considered further in the Discussion chapter.

Chapter VII

DISCUSSION

Perception of the Negative Mother

In this experiment a critical assumption was made that the salient features of each mother as they discussed their child-rearing practices would be perceived similarly by all Ss. However, the notorious inability of schizophrenic Ss to maintain an instructional set may have rendered this assumption a gratuitous one with these patients. Fortunately, the PALS test data attested to the consistency of the perceptions of all Ss, including the two schizophrenic groups. All groups ascribed the majority of unloving items to the negative mother, whereas the positive mothers were assigned a majority of the loving statements. It is of interest, however, to note the rank ordering of the frequency of these ascriptions by groups. Inspection of Figure 7 reveals that, in spite of the fact that the Non-Drug schizophrenics were able to recognize and report the salient characteristics of both mothers, they consistently ascribed fewer unloving items to the negative mother in comparison with all other groups; a similar relationship held true for loving items in regard to the positive mother. Stated in another way, Non-Drug schizophrenics tended to

ascribe more positive attributes to the negative mother, and more negative statements to the positive mother relative to the other groups.

The immediate conclusion suggested by these observations is that the Non-Drug schizophrenic Ss approach more closely than the other groups to a random ascription of traits to the two mothers, and that their performance on this task merely reflects "the essential variability of the schizophrenic." It is unlikely, however, that mere randomness of response can be asserted in the present instance, first, because in a statistically reliable fashion the Non-Drug schizophrenic Ss did recognize the negative mother as predominantly unloving, and the positive mother as loving. In addition, it was observed that, prior to the formal administration of the PAIS test, nearly all of the Ss in this group were able to state clearly that they preferred the positive mother to the negative mother. Nevertheless, there may exist some unwillingness on the part of these Ss to approach the extremes of trait ascription that were achieved by the other groups. This may be more of a calculated orientation than a tendency to random response. The Non-Drug schizophrenic may to some extent attempt to conceal his preference when he is repeatedly required to reiterate preference by ascribing positive and negative attributes to the mothers. There is both clinical and experimental evidence to support this hypothesis. Bateson, for example, has observed: "Typically, the schizophrenic will eliminate from his messages everything that refers explicitly or implicitly to the relationship between himself and the person he is addressing . . . and they are likely to have difficulty with all messages and meaningful acts which imply intimate contact between the self and some other." (1960, p. 96.)

Harris (1957) has described the Poor premorbid schizophrenics in his study as being less able to express disapproval of their mothers than were

Goods or Normals, and this was true in spite of the fact that the Poors had ascribed initially more deviant child-rearing practices to their mothers than had the other groups. Alvarez (1957), too, found that schizophrenic Ss tended to be less consistent in ascribing negative adjectives (as compared with their consistency in ascribing positive adjectives) to photos of persons that had been rated in terms of high and low preference values.

One observation about the response of these groups to the task of assigning mothers to the PALS test items is of interest. The task could have been presented to S in such a manner as to allow him to respond to an item by ascribing it to "neither" or "both" mothers. However, such a procedure would have permitted too much latitude for avoidance by the schizophrenic patients of a direct ascription. Therefore, E asked S to choose in each case the mother for whom the trait was truer. In some instances, however, there had been no information on the tape that would have allowed S to make an absolute judgment. Both the Normal and Alcoholic Ss frequently pointed this fact out to E. However, in no case did a schizophrenic patient make a similar observation. This is an interesting, albeit a somewhat tangential confirmation of the assertion of Bateson, Jackson, Haley, and Weakland (1956) that the schizophrenic is incapable of making metacommunicative statements, i.e., he cannot bring himself to comment upon the nature of a communication sequence, but can only respond within it. Furthermore, the inability to comment itself suggests a certain degree of conformity manifested to the authority figure of E and the directions he has issued.

Conformity with the Negative Mother

In devising the instructions for the Occupational Choice Task, care was

taken to make them ambiguous enough so that, whatever tendencies toward conformity with a maternal figure were brought by S into the experimental situation, would be maximally mobilized; on the other hand, the instructions had to be ambiguous enough to allow S to remain free from the influence of the maternal figures should that have been his tendency. It is felt that the instructions utilized achieved just the proper degree of ambiguity to permit S to respond solely on the basis of the job characteristics on each trial (". . . tell me which one you would recommend.") or to be very much influenced by the maternal figures (". . . if you push it toward the arrow you will be agreeing with Mrs. T, . . . away from the arrow you'll be disagreeing with Mrs. T."), and in either case to feel that he was following instructions.

In the light of E's instructions, then, it seemed possible to establish a criterion for whether S's performance in the Occupational Choice Task was determined more by the instructions to make his own job recommendations (task-relevance), or, on the other hand, by the expressed preferences of the mothers (task-irrelevance). The latter mode of responding to the task, which implies that S is relatively sensitized to the preferences of the mother, says nothing of the manner in which this influence will manifest itself in S's performance. It would seem, however, that there were two ways in which the mother's preference would be manifest in S's performance in the present study--S could either have been influenced to agree with her preferences, or to disagree with them. If no relationship was found between S's response patterns and those of either mother, one would seem to be justified in assuming that S had been uninfluenced.

What relationship does this view bear to the specific data in question? There were three dependent variables that presumably reflected the intrusiveness of the mother's judgments upon S's expressed preferences: the proportions

of agreement and disagreement, the latencies of agreement as compared with those of disagreement, and the number of changes by S on the repeat trials, either toward agreement or disagreement. Under conditions of minimal task-relevance, i.e., maximal influence by the mother, one would expect a significantly greater than chance relationship between the mother's choices and all three of these dependent variables. On the other hand, maximally task-relevant behavior should reflect none of these effects, since, (a) the appearance of the jobs on the cards was randomly determined, and preferences based solely on the salient characteristics of each pair of jobs should approximate a 50-50 proportion of agreement and disagreement with the mother,[1] (b) agreement and disagreement with the mother is not an issue when responses are completely task-relevant; therefore the latencies for the former should not differ from the latencies for the latter, and (c) on the repeat trials, where the mother is present, freedom from her influence should result in no change in the preferences already expressed in her absence.

Is it possible, using this framework of analysis, to define a degree of task relevance somewhere between the two extremes just defined, i.e., a condition of being somewhat influenced by the mothers, but attentive to the instructions as well? To speculate, one might imagine such an S as being one who recognizes in the mother a source of influence, and is perhaps even sensitized to such a mother, but who at the same time is able to pattern his behavior according to the instructions he has received. It does not seem

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[1] That this is true is supported by the data on the first ten trials before the tape recording--the trials when no mother was present. The left-right distribution of all four groups of Ss was 48.75-51.25 (Non-Drugs: 44-56, Drugs: 50-50, Alcoholics: 48-52, and Normals: 53-47). Further discussion is given to the issue of the placement of the jobs on the cards in a later section of this chapter.

likely that the influence of the mother on such an S's responses, in the present study, would be manifested in the more obvious facets of his response, i.e., the changes in preference on the repeat trials, or the slightly less obvious pattern of agreements and disagreements over a number of trials. On the other hand, it might be expected that, if the mother's influence is going to be manifest in S's responses at all, it would be in the more subtle response characteristic of latency.

This analysis of the three dependent variables is of value in examining the conformity behavior of all groups in the present study, especially as regards the negative mother. Reference to Figures 11, 10, and 8 reveals the following:

1. The approach of the Non-Drug schizophrenics to the task may be viewed as almost completely dominated by the influence of the mother. The number of changes in the direction of agreement is significantly greater than for any other group. The difference between their proportions of agreement and disagreement with the negative mother deviates markedly from zero in the positive direction, and is significantly different from all other groups. In addition, the latencies with which they disagree with the negative mother are much longer than the latencies with which they agree with her.

2. The Drug schizophrenics show greater task-relevant behavior than do their Non-Drug counterparts, but tend to reveal in their latencies the encroaching influence of the negative mother. Although the differential change toward agreement on the repeat trials is small and the difference between proportions of agreement and disagreement is negligible, the differences in latency assume the same direction and almost the same magnitude as in the case of the Non-Drug schizophrenics.

3. The Alcoholic group appears to have been influenced by the negative mother to the same extent as the Drug schizophrenics, but not in the direction of conformity. Rather, they appear to have reacted in the opposite way. The changes on the repeat items, while few in number, are preponderantly toward disagreement. The difference between the proportions of agreement and disagreement among the Alcoholics is zero, but there is a significant difference between the latencies of these responses, with disagreements being much the faster.

4. Finally, Normals show a completely task-relevant response pattern. None of the three dependent variables used to reflect the influence of the negative mother shows a value appreciably different from zero.

The implications of this speculative analysis will now be considered with reference to the specific groups:

Non-Drug Schizophrenics. The results confirm strikingly the tendency of Non-Drug schizophrenics to conform to the negative mother. If one considers the negative mother to represent to the patients a potentially punishing figure, the results of this study may be fitted conceptually into several of the previous studies of avoidance behavior conducted under the aegis of the Duke Schizophrenia Project (Rodnick and Garmezy, 1957). In those studies it was demonstrated that a "Wrong" signal had strongly aversive properties for the schizophrenic patient, and led to a relinquishment of the punished response. In the present study, the negative mother may be viewed as functionally comparable to the "Wrong" signal, and it can thus be hypothesized that she is viewed by the patient as a potent source of punishment for behavior that deviates from her own, or from her expectations. Under these circumstances the patients were expected to choose the response that had the

highest probability of avoiding the threatened punishment, in this case, conformity. The response patterns of the Non-Drug schizophrenic patients thus tend to confirm both the formulation of avoidance behavior elaborated by Garmezy (1960), and the observations of the more dynamically oriented clinical literature on the "symbiotic" nature of the parent-patient relationship in schizophrenia (Arieti, 1955; Bateson et al., 1956; Bowen, 1960; Lidz and Lidz, 1949; Stierlin, 1959; Wynne, Ryckoff, Day, and Hirsch, 1958). The consensus of all of these authors is that conformity is demanded of the pre-schizophrenic child, with immediate and decisive punishment forthcoming for deviations from this pattern. Bateson says: "The schizophrenic communicates as if he expected to be punished every time he indicates he is right . . . and repeated experience of punishment . . . will lead the individual to behave habitually as if he expected such punishment." (1960, p. 97.)

This quotation not only describes observations based upon past history of the schizophrenic patient, but suggests the answer to the question of why it is best to view conformity as an avoidance of punishment rather than a seeking of rewards. The schizophrenic probably receives very few rewards that can clearly be identified, whereas punishment in his family is ubiquitous. Under such conditions, the relative meaningfulness of rewards is extinguished, and punishment becomes the prepotent motivator to behavior. Recent experimental studies by Alvarez (1957), Bleke (1955), and Leventhal (1959) have demonstrated this to be true of schizophrenic Ss.[2]

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[2] A further theoretical discussion of conformity in terms of social psychological theory is presented later in this chapter.

Responses to the Negative Mother by Other Groups

Drug Schizophrenics. The Drug schizophrenic group was clearly less affected by the maternal stimuli used in this study than were the Non-Drug patients. All Ss in the Drug group were receiving phenothiazines[3] as their medication. A review of the literature on research into the effects of these drugs shows that although many studies have been done recently, none bears directly upon the type of dependent variables used in the present study. These studies, for the most part, have been concerned with drug effects on either or both of two variables: gross behavioral effects, or neurological effects. (Kurland, Hanlon, Tatom, and Simopoulos, 1961; Wood, Miklowitz, Chapple, Chapple, Kline, and Saunders, 1961.) Bennett and Kooi (1961) carried out a carefully designed study to evaluate and compare five of the phenothiazine derivatives. Their conclusion was that there were no apparent differences in the behavioral reactions of schizophrenic patients to any of the phenothiazines in terms of their ward behavior; all Ss manifested more improvement than a control group that was on phenobarbitol medication. Unfortunately, no detailed description of the behavioral changes is given. The study does permit the conclusion, however, that there are no important differences between the phenothiazines as regards their effects upon behavior in schizophrenic patients. Moss, Jensen, Morrow, and Freund (1958) carried out an investigation using only chlorpromazine, one of the most extensively used of the phenothiazine group. His results support those of Bennett and Kooi (1961) in that significant behavioral changes, as measured on a rating scale by nursing personnel, were observed. Moss, however, qualifies this result by presenting the

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[3] The drug data on these patients appear in Appendix B.

pre-post results of psychological testing. These, he finds, show very little change. He suggests that phenothiazine medication may lead to superficial changes in observable behavior, but that the underlying psychopathology is essentially unchanged.

The summary impression of most of the studies in this area is that the phenothiazines have the virtue of providing a sedative effect at the same time that they lead to behavioral improvements as manifested by such observations as reduced aggressive behavior, lessened emotional tension, decreased hallucinatory and delusional experiences, and improvement in affect.

The studies which bear more directly upon this drug issue are the previous studies of the Duke Schizophrenia Project in which the presence or absence of drugs has been one of the experimental variables. Zahn (1959) found that in a size-estimation task which was carried out using aversive and neutral stimulus material, those schizophrenic patients that were receiving tranquilizing drugs manifested much less of a differential response to the aversive stimuli than did the Non-Drug patients. Furthermore, Zahn's Drug Ss showed lessened avoidance behavior in a pseudo-discrimination task in which "Wrong" signals were used as informational cues. Alvarez (1957) reports essentially the same sort of drug effect in his study in which pictures previously rated by the patients as neutral were paired with censure. Non-Drug schizophrenics showed a significantly greater decrement in preference rating for such pictures than did the patients receiving tranquilizing medication.

An interesting additional contribution to the study of drug effects, in the present study was the measurement of Ss' responses along more than one dimension. The aspect of the response in the present study that bears the greatest similarity to the responses measured by both Alvarez and Zahn is the direction of the simple lever movement made to the occupational pairings.

These motor movements in all three studies reflect simple frequency indicators that are highly task-centered. In the light of their comparability, response modification under drug conditions similar to those in the previous studies would be expected. This, of course, happened. However, it is in the subtler response characteristic of latency that tranquilizing medication has a much less striking effect. These results are analogous to those of Moss et al. (1958) cited above, and suggest that the general effect of tranquilizing drugs is rather superficial in nature. The more obvious aspects of behavior may show change under such medication, but it seems likely that internalized states of conflict may remain unaffected.

Alcoholics. Although the Alcoholics were included in the present study as a control for the factors both of hospitalization and psychopathology, there are shortcomings in their use as control Ss. For one thing, depth of psychopathology[4] is uncontrolled, as is level of premorbid adequacy.[5] Since these two factors covary simultaneously with the diagnostic dimension it is not possible in the present context to determine what portion of the variance is uniquely contributed by the presence of schizophrenia. Nevertheless, it is of interest to note the striking differences that existed between these groups. The Alcoholics were also influenced to a considerable extent by the

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[4] To have controlled for the variable, depth of psychopathology, would have required the utilization of some other psychotic, but non-schizophrenic population, such as manic-depressives. Such a population was not available in sufficient numbers to be of use.

[5] The differences between these groups in premorbid adequacy could not be rigorously determined, as the necessary information was not available for the Alcoholics. However, all of the Alcoholics had been married at one time, and this fact, in itself, would earn for them a significantly better premorbid rating. For other differences between these groups see Chapter III; discussion of social class differences appears later in this chapter.

presence of the negative mother, but in a direction that suggested that she generated hostile responses in these Ss. Their disagreements with her were executed much more quickly than their agreements, a result that was discrepant with the behavior of all other groups. Again it appeared that the latency measure may have been more sensitive to the subtle and more basic attributes of S's response to such a non-nurturant maternal figure.

The literature on alcoholism does not contain many references to the actual family background of the alcoholic as it has been empirically investigated, although there are many dynamic formulations based upon what such a background "must have been like." For the most part, though, the few empirical studies and the dynamic formulations are in agreement. The latter are well summarized by Swerling and Rosenbaum (1959):

> In essence, the alcoholic is seen as having been rendered vulnerable, by early security-threatening operations of deprivation, to addiction to a magical fluid which dispels tension and depression, relieves the sense of loneliness, places an instantaneously available source of pleasure at his disposal, permits the mastery and simultaneously the expression of unmanageable hostile feelings, and has a virtually built-in and guaranteed array of sufferings and punishments which serve both to appease the conscience mechanism and to feed back the stress stimuli for continuing the cyclic addictive process. (1959, Chap. 31.)

The security threatening operations are seen as outright rejection, usually at the hands of a non-nurturant maternal figure, which predispose the alcoholic to lowered self-esteem, inadequate masculine identification, unresolved dependency needs, and, most characteristically, a seething, resentful hostility, expressed by some constantly, by others only with the help of alcohol.

The modal description of the psychodynamics of alcoholism presented above has been derived primarily in clinical practice. Several careful sampling studies have been executed which confirm the essential points of the clinical

formulation. (Button, 1956; Sutherland, Schroeder, and Tordella, 1950.) One study, however, which has focused upon the family background of alcoholics, provides a valuable basis for comparing the differences between the Schizophrenics and Alcoholics in the present study. Wahl (1956), who previously had also studied the family background of schizophrenics (Wahl, 1954), investigated the family background of 109 alcoholics. He, too, found that there had been an unusual amount of deprivation and rejection by the mother in the family, but also that there was a significant amount of rejection at the hands of the father. The amount of rejection in either case was no less than he had found in the families of schizophrenics. The important difference Wahl noted between these families, however, was in regard to the consistency with which the rejection was expressed. Typically, in the family of the schizophrenic, the child would be confronted with an alternation between rejecting parental withdrawal and awkward attempts to be loving for no apparent or objective reason. These inconsistencies were apparent both between parents and, at different times, in the same parent. In the families of the alcoholics, on the other hand, both parents were seen to be equally and consistently rejecting of the child. Thus, in the case where the preschizophrenic child would be more likely to be overcome with guilt, and begin to blame himself, the alcoholic would develop intense feelings of hostility, anxiety, and unworthiness.

An even more important difference, however, seems to have characterized these families. Both sets of families appear to have had "a paucity of intrafamilial resources." The alcoholics, though, were able to develop meaningful relationships outside the family, in clubs, church groups, play groups, and the like. These activities apparently came to be used by the alcoholic as substitutes for the frustrations that existed in his family relationships.

Previous references to the work of Bateson et al. (1956), Wynne et al. (1958), and the Lidz group (1949) have described the extent to which such autonomy-seeking ventures were prohibited for the schizophrenic.

Such differences in the background as Wahl describes would seem to overshadow the similarities previously mentioned. It is these very differences that could account for the variations in behavior manifested by the alcoholics in comparison with the schizophrenics in the present experiment. The alcoholic, subjected in his life history to hostility-arousing treatment at the hands of a rejecting maternal figure, would certainly be motivated to the expression of such hostility. Presumably the more satisfactory social relationships would at the same time commit him less totally to the perpetual influence of such a figure, as compared with the schizophrenic. Psychodynamic formulations suggest that it is at less than a fully conscious level that the alcoholic acts out his longheld resentments, while socially he is often a charming and affable individual. It is not surprising, therefore, to find the hostility of the alcoholic group expressed only in the latency of their agreement-disagreement responses, while the direction of those responses suggests that the alcoholics remain to a great extent task-oriented.

Normals. Using the task-relevance-irrelevance formulation developed at the onset of the discussion on conformity, it would appear that the normals were responding in an almost completely task-relevant way. The characteristics of both their frequency and latency data conform to the criteria for task relevance. Apparently the Normal Ss took full cognizance of the option implicit in the instructions that they were simply to express their own preferences for the jobs. Their ability to remain uninfluenced by the preferences of the mothers is especially dramatic in view of the fact that this group assigned the most extreme frequencies of unloving attributes to the nega-

tive mother on the PALS test. One can speculate that these Ss brought with them into the experimental situation few predispositions, if any, of sensitivity to maternal cues, characterized by dominance and rejection. Consequently they were able to attend consistently to the instructions, regardless of the presence of such "extraneous" stimuli as the tape recording, the maternal pictures and their respective trait ascriptions.

Support for this speculation is present in the responses of many of these Ss to the questions asked by E at the end of the experiment. When they were asked if they thought that the positive and negative mothers were picking similar sorts of jobs, or if they thought that they had tended to agree more with one mother than the other, their typical response was that they really didn't know, since they hadn't been paying much attention to what the mothers had been doing. These observations would suggest that the negative mother did not serve as a significant cue for the normal Ss as she apparently did for the schizophrenic and alcoholic Ss.

Although relatively little has been written about the family background of normals, a number of studies suggest that the pathological relationships found in psychiatric groups are either absent or far less intense in families of normal sons. The findings of Sears, Maccoby and Levin (1957) provide support for this viewpoint. These investigations on the basis of intensive interviewing of 379 mothers in and around the Boston area report that the use of such techniques as withdrawal of love, isolation, pervasive control, and the like occur only infrequently. Clausen and Kohn (1960), using normals that were carefully matched with the schizophrenic patients used in the study, found that the pattern of child rearing characteristic in the families of the schizophrenics (i.e., domination and maternal control) was not typical of the

families of normals.[6]

Specificity of Maternal Cues

The evidence indicates that schizophrenic Ss tend strongly to conform to the preferences expressed by a cold and domineering maternal figure. But is this conformity a specific or highly generalized response, i.e., do schizophrenic Ss respond similarly to all maternal figures irrespective of their trait attributes? The study, as it was originally designed, sought to provide a clear-cut answer to this question. Groups of Ss were to be run with the effect of order controlled. Thus half the Ss within each group were to be exposed first to the negative mother, followed by the positive mother. The other half would follow an identical procedure with the order of mothers reversed. Unfortunately this latter condition could not be completed, because of the unavailability of schizophrenic subjects. (The difficulties encountered in obtaining subjects for the study and its implications for the analysis of the data in the present study are discussed in a subsequent section.)

This failure to control for sequence effects makes it difficult to interpret the data obtained for the positive mother. Whether or not order effects or factors of recency and the like operated to produce the results that were obtained cannot be ascertained. It is quite likely, however, that some confounding exists, based upon sequence factors.

Still another but less obvious effect may also operate on responses made

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[6] Although this statement is true, it must be qualified by social class considerations. These are discussed later in this chapter.

to the positive mother. This relates to the adequacy of the pairings of occupations on the final fourteen trials (those to which the positive mother purportedly responded). Several limitations in the assignment of occupations on these final trials are particularly relevant.

1. In selecting jobs that were similar from the CPII there were approximately thirty pairs of occupations of such marked similarity as intuitively to suggest that the probabilities of choosing either one, in the long run, seemed equal (as judged by two raters). These pairs were used on the trials with the negative mothers; the fourteen less well matched pairs were then assigned to the trials on which the positive mother responded.

2. The use of these less well matched pairs may have made it less likely (especially on the more discrepant jobs) that the probability attached to a choice of either, even in the long run, would be .50. For some pairs it is quite possible that the probability of a given choice may have approached 1.0.

3. If in the assignment of preferences for the positive mother, when setting up the Occupational Choice Task, E inadvertently had her prefer many of the jobs with a higher probability of choice, then an S who was behaving in a task-relevant manner, and indicating his preferences based solely on job characteristics, should have appeared as if he was tending to conform to the judgments of the positive mother, on those biased trials. If on the remaining trials S's pattern of agreement with the positive mother was merely random, there would result a pattern strongly suggestive of conformity.[7]

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[7] To test this conjecture E had three Ss rate the final fourteen pairs

This analysis has been pursued only because it is consistent with what happened on the final fourteen trials. The responses of the normals serve as the most telling example: Although this group of Ss had shown virtually no tendency to be influenced by the preferences of the negative mother, they appear to have been influenced in their job preferences by the presence of the positive mother. Figure 12 depicts a differential tendency toward agreement, suggesting that normals are conforming to quite an extent to the preferences of the positive mother, especially in comparison with their failure to have done so in response to the negative mother. However, Figure 13 shows that their differential latencies on agreement and disagreement (the response measure that has appeared most sensitive to task irrelevance) are about zero. It is possible then that these normal Ss are indeed responding in a task-relevant manner despite the appearance of conformity. The ultimate validity of this analysis can only be determined by a projected study in which all trials of job choices will be without the presence of the mother.

How does all of this relate to the issue of cue specificity? If the responses made by the Non-Drug schizophrenic Ss to the negative mother had been uniquely determined by her personality attributes, one would have expected substantial differences between those responses and the responses made by these Ss to the positive mother. The results indicate that the differences between responses to the two mothers were not striking; the differences in

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for occupational preference. There was complete agreement on six of the fourteen pairs. On all six the direction of choice was consonant with the direction of choice of the positive mother. On this basis one would predict approximately 70% agreement--a value achieved by the Normal control group with the positive mother. A study is now projected to test this assumption further by having a large number of schizophrenic and normal Ss rate job preferences on all trials without maternal stimuli present.

latencies and the proportions of agreement and disagreement in the group of Non-Drug schizophrenics were approximately the same for both mothers. If, however, their apparent agreement was based upon the inadvertent relationship between job placement and the preferences assigned to the positive mother, as may have been true for the normals, then the actual tendency of these Ss to agree with the positive mother would have been spuriously inflated. Thus, it is possible that the Non-Drug schizophrenics were indeed less influenced by the positive mother than by the negative mother. To buttress this probability, there were no significant differences between the four groups of Ss in their proportions of agreement and disagreement to the positive mother, whereas the Non-Drug schizophrenics were significantly different from all other groups on that measure when responding to the negative mother. These findings do lend some support to the notion that the negative mother is highly cue-relevant for eliciting conformity behavior in the Non-Drug schizophrenic patients.

On the other hand, there is much evidence in the studies of the Duke Schizophrenia Project (Garmezy and Rodnick, 1959; Rodnick and Garmezy, 1957) to suggest that the schizophrenic patient is a highly over-generalizing individual, especially when the stimuli to which he is responding carry the threat of punishment. According to this formulation, the mother in interaction with whom the schizophrenic has learned his heightened avoidance tendencies, becomes a highly generalized stimulus figure. On this basis one would have _expected_ the schizophrenic patients in the present study to respond similarly to both of the maternal figures. Thus it may be that, while the coincidence of job-placement and mother's preference can be used to account for the heightened agreement of the _Normals_ in the present study, the schizophrenic Ss would have shown such a pattern regardless of the methodo-

logical aspects of the issue. The question cannot be answered until the projected study without mother's pictures is executed.

Social Psychological Treatments of Conformity

Conformity behavior has been most exhaustively studied from the point of view of social psychological theory. In this context most such theories treat conformity in its normal manifestations, with little mention made of the relevance of the formulation for more intensely psychopathological states. This is not to say that such theories do not contain the systematic variables appropriate to such an analysis, but only that, in the realm of social psychological research, the empirical variables that are typically investigated do not include those ordinarily used in research in psychopathology. A brief attempt will be made here to relate two theoretical formulations of conformity behavior drawn from the literature of social psychology to the conformity behavior of S as manifested in the present study. The fit between theory and data in this instance may be found somewhat wanting since this study was not designed to represent tests of these theories. Nevertheless, the subject matter of both theories and this study are comparable and as such provide a rather interesting nexus.

Kelman (1958) has proposed a detailed theoretical framework within which to consider the phenomenon of conformity behavior. He sees conformity as being manifested under three different sets of conditions, only two of which will be considered here.[8] These two types of conformity are given the terms

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[8] Kelman's third type of conformity is internalization, which by definition does not seem to be appropriate to schizophrenia: "Internalization can

"compliance" and "identification." The definitions of these two types, with the presumed antecedents for their appearance and with their consequents are:

> *Compliance.* Definition: "Compliance can be said to occur when an individual accepts influence because he hopes to achieve a favorable reaction from another person or group. He adopts the induced behavior not because he believes in its content, but because he expects to gain specific rewards or approval and avoid specific punishments or disapproval by conforming. Thus the satisfaction derived from compliance is due to the *social effect* of accepting influence."
>
> Antecedent--"To the extent to which the power of the influencing agent is based on means-control, conformity will tend to take the form of compliance."
>
> Consequent--"When an individual adopts an induced response through compliance, he tends to perform it only under the conditions of surveillance by the influencing agent."[9]
>
> *Identification.* Definition: "Identification can be said to occur when an individual accepts influence because he wants to establish or maintain a satisfying self-defining relationship to another person or group. This relationship may take the form of classical identification, in which the individual takes over the role of the other, or it may take the form of a reciprocal role relationship. The individual actually believes in the responses which he adopts through identificatinn, but their specific content is more or less irrelevant. He adopts the induced behavior because it is associated with the desired relationship. Thus the satisfaction derived from identification is due to the act of conforming as such."

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be said to occur when an individual accepts influence because the content of the induced behavior--the ideas and actions of which it is composed--is intrinsically rewarding. He adopts the induced behavior because it is congruent with his value system. He may consider it useful for the solution of a problem or find it congenial to his needs. Behavior adopted in this fashion tends to be integrated with the individual's existing values. Thus the satisfaction derived from internalization is due to the *content* of the new behavior." This and all subsequent definitions are from Kelman (1958).

[9] Kelman elaborates several other antecedent and consequent conditions for each of these forms of conformity, but *source of power* and *conditions under which the response will occur* are seen by E as the most relevant ones to the schizophrenic family relationships.

> Antecedent--"To the extent to which the power of the influencing agent is based on attractiveness, conformity will tend to take the form of identification."
>
> Consequent--"When an individual adopts an induced response through identification, he tends to perform it only under conditions of salience of his relationship to the agent."

There are aspects of both sets of definitions, and their elaborations, that seem appropriate to the type of conformity manifested in the present study. The definition of compliance with its emphasis upon the avoidance of punishment, seems most clearly to describe such behavior. Kelman's use of the term "means control," as it is elaborated, implies that the influencing agent has complete control over whether a reward will be granted or a punishment withheld; hence, the individual must please the agent in order to effect the outcome. This describes quite accurately the view of the mother-child relationship of the pre-schizophrenic individual as described in the clinical literature of schizophrenia--a relationship that has been assumed in the construction of stimulus materials in the study. The difficulty in applying Kelman's definition arises when consideration is given to the conditions under which compliant behavior presumably will occur. Kelman stresses that the response will be elicited under conditions of actual surveillance by the influencing agent, in this case, the mother. But what constitutes surveillance is the issue here. Would such a response be elicited under conditions where the mother is not present, as well?

To assume that the response will occur under conditions of non-surveillance (i.e., non-presence of the influencing agent) would seem to endow the schizophrenic individual's behavior with attributes of "identification" as Kelman defines it. However, such direct surveillance fails to take into account the potent overgeneralizing tendencies of the schizophrenic patient (Cameron, 1947,

Chap. 15). Presumably learned compliance, too, generalizes to many interpersonal situations. The mother, according to this formulation, would represent the prototypical influencing agent, in relation with whom the schizophrenic learns to be compliant as a means of avoiding punishment. This then becomes a prepotent mode of response, which is widely generalized to other agents who are viewed as sharing her qualities of authority and domination. Identification, therefore, is not necessarily implied in the manifestations of such behavior under non-surveillance by the mother. This view receives support from previous studies of the Duke Schizophrenia Project (Rodnick and Garmezy, 1957) which point to the heightened propensity of the schizophrenics to generalize his responses to aversive stimuli, and also from a recent publication by Ryckoff et al. (1959). These latter authors contend that the schizophrenic never reaches the stage where identification occurs (in the sense of introjecting the values of others) but only that he becomes sensitized to certain power attributes of others and these then serve to determine his behavior.

Thibaut and Kelley (1959) have presented a major theoretical analysis of the behavior of dyads. Of particular significance is their theoretical concern with the effects of power and dependence upon the behavior of such dyads, and the nature of dyadic behavior that is manifested in non-voluntary relationships. Their concepts of fate control and behavior control seem well suited to the analysis of the dyadic interaction of the schizophrenic son with his mother.

Fate control obtains in a power relationship if, when A (the mother in subsequent discussion) alters her behavior, she determines the punishing or rewarding outcome of B's (the son's) behavior, no matter what B does. Figure 14 depicts such a relationship; it assumes a mother and child in interaction

over a period of time, and that their behavior toward each other, for the purposes of discussion, may be dichotomized as loving or unloving. The plus and minus signs signify the expectations that B has come to attach to the four possible types of interaction, plus signifying reward, and minus punishment. In Figure 14, then, if A chooses to act unlovingly, B's outcome in interaction with her will be essentially punishing, regardless of whether he responds by acting lovingly or unlovingly. Conversely, if A chooses to act lovingly, B's outcome will be rewarding, regardless of how he acts.

		A	
		Lov	Unlov
B	Lov	a +	b -
	Unlov	c +	d -

Figure 14
Fate
Control

Behavior control describes a power relationship within which B has more control over outcomes. In this sort of relationship, if A alters her behavior, B will have to alter his behavior in order to obtain the optimal outcome. Such a relationship is depicted in Figure 15. Here, if A acts lovingly, B will have to act lovingly in return in order to obtain the most rewarding outcome, although he does have the option of choosing which outcome he will obtain. If A acts unlovingly, B will have to behave in kind in order not to be punished.

		A	
		Lov	Unlov
B	Lov	a +	b -
	Unlov	c -	d +

Figure 15
Behavior
Control

Using this sort of analysis, one may describe the mother-child relationship in schizophrenia in a way congruent with a large part of the clinical experimental literature and particularly the *conformity* pattern of son to mother. This formulation is especially congruent with the "double-bind" hypothesis (Bateson, et al., 1956). The main thesis of this analysis is that *the relationship within which the schizophrenic son and his mother interact is presented to the son as one of behavior control, not different in any significant way from the more typical parent-child relationship. In reality, however, this relationship is one that is better described as fate control, in that all outcomes are determined by A, and are the same, regardless of how B behaves.* Several assumptions are necessary for this formulation:

1. A non-voluntary relationship exists in the sense that even should the son want to leave, he could not do so. The prohibitions against leaving would be partly due to the dependence of the child upon the parent for gratification of basic needs, and partly due to implicit and explicit sanctions against leaving. These latter prohibitions have been described by Wynne et al. (1958) as well as others (Bateson et al., 1956; Stierlin, 1959).

2. In any given interaction, B will seek the best outcome. This is an assumption in Thibaut and Kelley's (1959) theory, and would be expected in any case, simply on the basis of reinforcement theory. B will consider the best outcome to be the one that avoids punishment (Garmezy, 1960).

3. The mother has markedly ambivalent feelings in regard to the son, expressed chiefly as hostility toward him, and, alternately, as counter reactions to this hostility. That this is typical of the mothers of schizophrenics has been noted in many studies, most of which have been

summarized by Sanua (In Press).

How does the relationship which appears to the son to be an example of behavior control actually assume the characteristics of fate control? Figure 15 can be used to provide a hypothetical interaction between the son and his mother. Suppose the mother has asked her son, "Why don't you come here and give Mother a kiss?" The value in cell a indicates that when the mother is acting lovingly the son will respond in kind since that will avoid punishment. So, assuming that he will be punished if he responds by acting unlovingly (cell c), the son approaches to kiss his mother (cell a). As he attempts to do so, the mother turns her head sharply and says, "Oh, not on the mouth, dear, you'll give Mother your germs." What this response does, in effect, is to reverse the signs in cells a and c. The child has been punished for acting lovingly when his mother did, and apparently the way to have avoided punishment would have been not to kiss her, or to have acted unlovingly. Or, using cell d as the point of departure, assume that the mother says, "Please don't climb all over me, dear, when I'm reading my book." The child climbs off the couch to play with his toys in his room, and the mother says, "Well, you don't have to leave me here all alone." Thus, rather than being rewarded for refraining from acting lovingly toward his mother when she was not in the mood, the child has been rebuked. This would reverse the signs in cells b and d. The net effect of repeated interactions like these would be to cancel all of the signs, with the resultant assumption of a status of fate control. When Mother acts lovingly, or unlovingly, the value for all outcomes for the son are the same, and punishing, no matter what he does. Thus he can develop no long-range consistent pattern of behavior. Under these circumstances the safest response in any given situation is to conform to the most salient aspect of the situation, most probably the mother's verbally expressed bidding. The

power situation which appeared to the son to afford him an element of behavior control is in the long run fate control of a very insidiously punishing kind.

Thibaut and Kelley (1959) have described the effects on behavior of being subjected continuously to a non-voluntary relationship in which fate control is exerted, with examples drawn from the behavior of army draftees and prisoners in concentration camps. Included among these are such tendencies as devaluating alternative relationships, decreasing the salience of alternative relationships, and becoming increasingly less able to adapt to new situations. Such behavioral patterns are viewed clinically as the hallmarks of schizoid withdrawal.

Methodological Considerations

A number of methodological issues have been posed in this study. The first of these is essentially a subject-related problem.

The principal difficulty in executing the present study as it was originally designed was the inability to procure Ss. This problem was most accentuated in securing schizophrenic subjects who were not receiving drug medication. Eventually it was possible to obtain such Ss only by requesting their physicians to remove the patients from drugs for a two-week period. However, the attitudes of physicians toward such requests suggested some biasing effects. Physicians varied in their willingness to discontinue drugs with some patients. A subsequent analysis revealed that patients who were taken off drugs proved as a group to have a higher (Poorer) premorbid rating than those who were retained on drugs, and consequently became Ss in the Drug group (see Table VI). This factor more than any other accounted for the systematic inter-

group differences described in Chapter III. It was not entirely clear why the physicians in some cases were willing to remove the patient from drugs and not in others, but when they demurred it was usually with the hint that the patient would become a management problem immediately. By implication these physicians indicated that those patients they could consent to remove from drugs were sufficiently chronic or withdrawn so that being removed from drug medication would make no difference. There was no tactful way of checking this speculation, or of compensating for the bias in a way that would have more closely equated the groups of Drug and Non-Drug schizophrenic Ss. This problem has been reported previously by both Alvarez (1957) and Zahn (1959). Alvarez found that the differential use of drugs in the patients he studied was related to chronicity. Thirteen of the acute patients he used, of the total of twenty, were receiving drug medication. Conversely, thirteen of his twenty chronic patients were not. Although this may have been due to the fact that the study was carried out at a time when drugs were not so universally used as today, it appears that the physicians, even then, were applying, in Alvarez's terms, an "implicit premorbid scale" of their own. Zahn's data revealed a comparable bias in selection for drug therapy, or removal from it.

The problem of how long patients should be off drugs in order to be considered "drug-free" is not readily answered. Dunham (1959) has reviewed some of the research on the speed of excretion of the drug in relation to the return of behavioral symptoms following termination of medication. Estimates of the amount of time required for a patient to show behavioral change in response to termination of drugs vary from as little as two days (Kinross-Wright, 1955) to three to four months (Good, Sterling, and Holtzman, 1958). Discussions with a number of physicians about this matter suggested that two weeks would be an appropriately conservative interval. In the case of a number of the patients

taken off drugs, their physicians approached the experimenter before two weeks had elapsed, asking when the patient was to be used as an experimental S because of their concern over the fact that behavior changes were beginning to be manifested. Thus E was fairly certain that the two-week interval was sufficient.

One other precautionary note is worth mentioning in regard to the interpretation of the data of the present study. It was assumed that any differences between the responses to maternal figures of the groups of schizophrenic and those of the other subject groups would be due to differences in the extent to which these groups had experienced maternal dominance in their family relationships. Clausen and Kohn (1960) have reported that maternal dominance and social class are not independent factors. Schizophrenics, regardless of social class, ascribed the dominant family role to their mothers, whereas normal controls who reported a comparable pattern were primarily of lower class origins. Normal control Ss from increasingly middle and upper social classes reported an increasing degree of paternal dominance in the family. The controls in the present study were uniformly from a higher class than were the schizophrenic patients. Clausen and Kohn cite in the same paper that social class seems to make an independent contribution to psychopathology, in that psychiatric disorders, especially schizophrenia, show much higher incidence in the lower classes than at the upper socio-economic levels. Thus, the differences between the Normal controls and the Schizophrenic patients in the present study may represent a confounding of the effects of maternal dominance and social class. This precaution does not apply to the differences found between the alcoholics and the schizophrenics in that they are all from the same class.

Suggestions for Further Research

A solution to several questions that have remained unanswered in the present study may be suggested by some projected variations in some of the treatments of the present study:

1. The most important and interesting of these questions is the analysis of conformity of response when schizophrenic patients are presented simultaneously (rather than sequentially) with the choices of the two mothers. Such a procedure would make the influence of one type of maternal figure exclusive to the influence of the other. Such a study is at present being contemplated by E.

2. To reduce the likelihood that presenting the mothers in such close temporal sequence may have had a confounding effect, the presentation of mothers could be separated by a day or so.

3. It is E's intention to run a group of Normal Ss and Schizophrenic Ss through the series of job choices without the presence of any maternal figure, in order to estimate the effects of job preference alone in comparison with the choices when the maternal figures were present.

Chapter VIII

SUMMARY

This study was an attempt to investigate conformity behavior in schizophrenic patients to two types of maternal figure--one domineering and rejecting, and the other democratic and loving. Previous research indicated that such conformity tendencies would be most heightened among schizophrenic patients who had made an inadequate premorbid social and sexual adjustment, particularly when such patients were responding under the potential influence of a cold and domineering maternal figure.

Four groups of ten subjects each were used: (1) a group of Non-Drug Poor Premorbid schizophrenic Ss, (2) a group of Drug Poor Premorbid schizophrenic Ss, (3) a group of hospitalized alcoholics, and (4) a group of normal control Ss.

S first listened to a tape recording of a purported interview with two mothers, each of whom indicated her agreement or disagreement with certain child-rearing statements. Through her responses, one of the mothers was depicted as cold and domineering, and the other as warm and loving. S then rated the mothers for their loving and unloving attributes. Finally S was

asked to indicate his preference for certain jobs that were presented in pairs. Prior to his own choice, S received information indicating the preference of the negative mother. A more restricted set of trials provided S with information about the preference of the positive mother. Conformity was measured in terms of the proportions of agreement and disagreement, and the relative latency with which these responses were made. A third measure of conformity was based upon S's shift in job choice from those made prior to hearing the tape recording.

It was predicted that the Non-Drug Schizophrenics would show heightened conformity to the negative mother. This prediction was confirmed. In addition an examination was made of the accuracy of S's perception of the two mothers, the extent to which conformity was manifested toward the positive mother, and the extent of conformity in the other groups of Ss.

The results of the study suggested, in addition to the heightened conformity of the Non-Drug Schizophrenics to the negative mother, that (a) there was some evidence in this group of Non-Drugs of relatively heightened conformity to the negative mother as compared with the positive mother; (b) that, as compared to the Non-Drug Schizophrenics, the Drug Schizophrenics manifested less conformity, the Normals were uninfluenced, and the Alcoholics tended to disagree with the negative mother. All groups were equally accurate in their perception of the two mothers.

The results are discussed in terms of (a) the schizophrenic S's prepotent response of avoidance of punishment, and its presumed origins in the relationships within the family, (b) the effects of drugs upon conformity behavior, (c) the differential familial backgrounds of schizophrenic, alcoholic, and normal individuals, and (d) the relationship between the conformity behavior manifested in the present study and certain social psychological theories of conformity behavior.

APPENDIXES

Appendix A

Two-Factor Index of Social Position

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Brief Instructions

The two-factor Index utilized occupations and education. These factors are scaled and weighted individually, and a single score is obtained.

The educational scale is based upon the years of school completed by the head of the household. The scale values are as follows:

Years of School Completed	Scale Value
Professional (M.A.; M.S.; M.E.; M.D.; Ph.D.; LL.B.)	1
Four-year college graduate (A.B.; B.S.; B.M.)	2
1-3 years college (Also business schools)	3
High school graduate	4
10-11 years of school (part high-school)	5
7-9 years of school	6
Under 7 years of school	7

The occupational scale is attached on a separate sheet. Its effective use is dependent on the precise knowledge of the head of the household's occupation. Occupational position has a factor weight of 7 and educational position a factor weight of 4. These weights are multiplied by the scale value for education and occupation of each individual or head of a household. The calculated weighted score gives the approximate position of the family on the over-all scale. For example, John Smith is the manager of the Safeway Store; he completed high school and one year of business college. I would score him as follows:

Factor	Scale Score	Factor Weight	Score x Weight
Occupation	3	7	21
Education	3	4	12
Index of Social Position Score			33

When the Index of Social Position score is calculated, the individual may be stratified either on the continuum of scores or into a "class." In the case of John Smith, I would rate him a class III on the basis of the position he occupies on the continuum of scores, and the way the scores are grouped into classes.

The range of scores in each class on the two-factor Index follows:

Class	I.S.P. Scores
I	11-17
II	18-31
III	32-47
IV	48-63
V	64-77

The various combinations of scale scores for occupation and education are reproducible in the Guttman sense for there is no overlap between education-occupation combinations. If an individual's education and occupation are known one can calculate his score. Conversely, if one knows an individual's score, he can calculate both occupational position and educational level.

We have made extensive studies of the reliability of scoring and the validity of the Index on over one hundred variables in our Social Stratification and Psychiatric Disorders Study. We have also made studies of loss of precision in using the two-factor Index rather than the three-factor one of occupation, education, and ecological area of residence. We recommend the two-factor one in areas where ecological maps do not exist.

I. The Socio-Economic Factor

A. Scale Positions

1. Higher Executives, Proprietors of Large Concerns, and Major Professionals

a. Higher Executives

Bank Presidents
Vice-Presidents
Judges (superior courts)
Large Businesses, e.g.
Directors, Presidents
Vice-Presidents, Assistant
Vice-Presidents, Executive
Secretary, Treasurer

Military, Comm. Officers
Major & above, Officials of
the Executive Branch of
Government, Federal, State
Local, e.g., Mayor; City
Manager, City Plan, Director
Internal Revenue Directors
Research Directors
Large Firms

b. Large Proprietors (Value over $100,000)

Brokers
Contractors

Dairy Owners
Lumber Dealers

c. Major Professionals

Accountants (C.P.A.)
Actuaries
Agronomists
Architects
Artists, Portrait

Economists
Engineers (College Grad.)
Foresters
Geologists
Lawyers

c. Major Professionals (cont.)

Astronomers
Auditors
Bacteriologists
Chemical Engineers
Chemists
Clergymen (Professionally trained)
Dentists
Metallurgists
Physicians
Physicists, Research
Psychologists, Practicing
Symphony Conductor
Teachers, University, College
Veterinarians (Veterinary Surgeons)

2. Business Managers, Proprietors of Medium Sized Businesses, and Lesser Professionals

a. Business Managers in Large Concerns

Advertising Directors
Branch Managers
Brokerage Salesmen
District Managers
Executive Assistants
Export Managers, Int. Concern
Govt. Officials, minor e.g., Internal Revenue Agents
Farm Managers
Office Managers
Personnel Managers
Police Chief; Sheriff
Postmaster
Production Managers
Sales Engineers
Sales Managers, Natl. Concerns
Store Managers (+$100,000)

b. Proprietors of Medium Businesses (Value $35,000-$100,000)

Advertising Owners (-$100,000)
Clothing Store Owners (-$100,000)
Contractors (-$100,000)
Express Co. Owners
Fruits, Wholesale (-$100,000)
Furniture Business (-$100,000)
Jewelers (-$100,000)
Labor Relations Consultants
Manufacturer's Representative
Poultry Business (-$100,000)

Purchasing Managers
Real Estate Brokers (-$100,000)
Rug Business (-$100,000)
Store Owners (-$100,000)
Theatre Owners (-$100,000)

c. Lesser Professionals

Accountants (not C.P.A.)

Chiropodists
Chiropractors
Correction Officers
Director of Community House
Military, Comm. Officers, Lts., Captains

Musicians (Symphony Orchestra)
Nurses
Opticians
Pharmacists

c. Lesser Professionals (cont.)

Engineers (Not College Grad.)
Finance Writers
Health Educators
Librarians
Public Health Officers (MP.H.)
Research Assistants, University (Full-time)
Social Workers
Teachers, Elementary and High

3. Administrative Personnel, Small Independent Businesses, and Minor Professions

a. Administrative Personnel

Advertising Agents
Chief Clerks
Credit Managers
Insurance Agents
Managers, Dept. Stores
Passenger Agents--R.R.
Private Secretaries
Purchasing Agents
Sales Representatives
Section Heads, Federal, State and Local Govtmtl Offices
Section Heads, Large Businesses and Industries
Shop Managers
Store Managers (Chain)
Traffic Managers

b. Small Business Owners ($6,000-$35,000)

Art Gallery
Auto Accessories
Awnings
Bakery
Beauty Shop
Boatyard
Brokerage Insurance
Car Dealers
Cattle Dealers
Cigarette Machines
Cleaning Shops
5¢ and 10¢
Florist
Food Equipment
Food Products
Foundry
Funeral Directors
Furniture
Garage
Gas Station
Glassware
Grocery-General
Hotel Proprietors
Inst. of Music
Clothing
Coal Businesses
Contracting Businesses
Convalescent Homes
Decorating
Dog Supplies
Dry Goods
Engraving Business
Feed
Finance Co., Local
Fire Extinguishers
Painting Contracting
Plumbing
Poultry Producers
Publicity & Public Relations
Real Estate
Records & Radios
Restaurant
Roofing Contractor
Shoe
Signs
Tavern
Taxi Company
Tire Shop

b. Small Business Owners (cont.)

Jewelry
Machinery Brokers
Manufacturing
Monuments
Package Store (Liquor)
Trucks and Tractors
Trucking
Upholstery
Wholesale Outlets
Window Shades

c. Semi Professionals

Actors and Showmen
Army M/Sgt; Navy C.P.O.
Artists, Commercial
Appraisers (Estimators)
Clergymen (Not Professionally trained)
Concern Managers
Deputy Sheriffs
Dispatchers, R.R. Train
Interior Decorators
Interpreters, Court
Laboratory Assistants
Landscape Planners
Morticians
Oral Hygienists
Photographers
Physio-Therapists
Piano Teachers
Radio T.V.-Announcers
Reporters, Court
Reporters, Newspapers
Surveyors
Title Searchers
Tool Designers
Travel Agents
Yard Masters, R.R.

d. Farmers

Farm Owners ($20,000-$35,000)

4. Clerical and Sales Workers, Technicians, and Owners of Little Businesses (Value under $6,000)

a. Clerical and Sales Workers

Bank Clerks and Tellers
Bill Collectors
Bookkeepers
Business Machine Operators, Offices
Claims Examiners
Clerical or Stenographic
Conductors, R.R.
Employment Interviewers
Factory Storekeeper
Factory Supervisor
Post Office Clerks
Route Managers
Sales Clerks
Shipping Clerks
Supervisors, Utilities, Factories
Toll Station Supervisors
Warehouse Clerks

b. Technicians

Dental Technicians
Draftsmen
Driving Teachers
Expeditor, Factory
Experimental Tester
Operators, P.B.X.
Proofreaders
Safety Supervisors
Supervisor of Maintenance
Technical Assistants

b. Technicians (cont.)

Instructors, Telephone Co.
Inspectors, Weights, Sanitary Inspectors, R.R., Factory
Investigators
Laboratory Technicians
Telephone Co. Supervisors
Timekeepers
Tower Operators, R.R.
Window Trimmers (Store)

c. Owners of Little Businesses

Flower Shop ($3,000-$6,000)
Newsstand ($3,000-$6,000)
Tailor Shop ($3,000-$6,000)

d. Farmers

Owners ($10,000-$20,000)

5. Skilled Manual Employees

Auto Body Repairers
Bakers
Barbers
Blacksmiths
Bookbinders
Boilermakers
Brakemen, R.R.
Brewers
Bulldozers Operators
Butchers
Cabinet Makers
Cable Slicers
Carpenters
Casters (Founders)
Cement Finishers
Cheese Makers
Chefs
Compositors
Diemakers
Diesel Engine Repair & Maintenance (Trained)
Diesel Shovel Operators
Machinists (Trained)
Maintenance Foremen
Installers, Electrical Appliances
Masons
Masseurs
Mechanics (Trained)
Millwrights
Moulders (Trained)
Electricians
Electrotypists
Engravers
Exterminators
Fitters, Gas, Steam
Firemen, City
Firemen, R.R.
Foremen, Construction, Dairy
Gardeners, Landscape (Trained)
Glassblowers
Glaziers
Gunsmiths
Gauge Makers
Hair Stylists
Heat Treaters
Horticulturists
Linemen, Utility
Linoleum Layers (Trained)
Linotype Operators
Lithographers
Locksmiths
Loom Fixers
Repairmen, Home Appliances
Rope Splicers
Sheetmetal Workers (Trained)
Shipsmiths
Shoe Repairmen (Trained)
Stationary Engineers (Licensed)
Stewards, Club

5. Skilled Manual Employees (cont.)

Painters
Paperhangers
Patrolmen, R.R.
Pattern and Model Makers
Piano Builders
Piano Tuners
Plumbers
Policemen, City
Postmen
Printers
Radio, T.V. Maintenance
Switchmen, R.R.
Tailors (Trained)
Teletype Operators
Toolmakers
Track Supervisors, R.R.
Tractor-Trailer Trans.
Typographers
Upholsterers (Trained)
Watchmakers
Weavers
Welders
Yard Supervisors, R.R.

Small Farmers

Owners (under $10,000)
Tenants who own farm equipment

6. Machine Operators and Semi-Skilled Employees

Aides, Hospital
Apprentices, Electricians, Printers, Steamfitters, Toolmakers
Assembly Line Workers
Bartenders
Bingo Tenders
Bridge Tenders
Building Supt. (Cust.)
Bus Drivers
Checkers
Coin Machine Fillers
Cooks, Short Order
Delivery Men
Dressmakers, Machine
Elevator Operators
Enlisted Men, Military Service
Filers, Benders, Buffers
Foundry Workers
Garage & Gas Station Assist.
Greenhouse Workers
Guards, Doorkeepers, Watchmen
Timers
Tire Moulders
Trainmen, R.R.
Truck Drivers, General
Waiters-Waitresses ("Better Places")
Weighers
Hairdressers
Housekeepers
Meat Cutters and Packers
Meter Readers
Operators, Factory Machines
Oilers, R.R.
Practical Nurses
Pressers, Clothing
Pump Operators
Receivers & Checkers
Roofers
Set-up Men, Factories
Shapers
Signalmen, R.R.
Solderers, Factory
Sprayers, Paint
Steelworkers (Not skilled)
Stranders, Wire Machines
Strippers, Rubber Factory
Taxi Drivers
Testers
Welders, Spot
Winders
Wiredrawers, Machine
Wine Bottlers
Wood Workers, Machine
Wrappers, Stores and Factories

Farmers

Smaller Tenants who own little equipment

7. Unskilled Employees

Amusement Park Workers
  Bowling Alleys, Pool Rooms
Ash Removers
Attendants, Parking Lots
Cafeteria Workers
Car Cleaners, R.R.
Car Helpers, R.R.
Carriers, Coal
Countermen
Dairy Workers
Deck Hands
Domestics
Farm Helpers
Fishermen (Clam Diggers)
Freight Handlers
Garbage Collectors
Grave Diggers
Hod Carriers
Hog Killers
Hospital Workers
  (Unspecified)
Hostlers, R.R.

Janitors (Sweepers)

Laborers, Construction
Laborers, Unspecified
Laundry Workers
Messengers
Platform Men, R.R.
Peddlers
Porters
Roofer's Helpers
Shirt Folders
Shoe Shiners
Sorters, Rags & Salvage
Stagehands
Stevedores
Stock Handlers
Street Cleaners
Unskilled Factory Workers
Truckmen, R.R.
Waitresses-"Hash Houses"

Window Cleaners
Woodchoppers

Relief, Public, Private

Unemployed (No occupation)

Farmers

Share Croppers

The range of I.S.P. scores for each of the five social strata and a somewhat broad general description of individuals composing each of these classes are outlined as follows:

Social Class	I.S.P. Scores	Characteristics
I	11-17	This stratum had the highest prestige. All were college graduates who were professionals, high executives, or proprietors of large businesses.
II	18-31	Almost all were college graduates who were in the lesser professional fields or were the top managers in large concerns.
III	32-47	Some may have had a little college training, but most were only high school graduates. They were usually small proprietors, white collar or sales personnel, skilled workers, and small farm owners.
IV	48-63	Most members of this class had elementary or high school educations. They were mainly semi-skilled workers. Some were marginal or small tenant farmers.
V	64-77	The lowest class was composed of individuals who usually had not more than an elementary education; and many had less than seven years of schooling. They were semi-skilled, unskilled, or unemployed workers. Some were public welfare cases.

Appendix B

History of Drug Therapy for Schizophrenic Patients

Drug Group				Non-Drug Group			
Subject Number[1]	Interval[2]	Drug	Dosage	Subject Number	Interval[3]	Drug	Dosage
1	0-34	Stelazine	10mg/bid	1	15-60	Thorazine	100mg/tid
	35-36	Stelazine	5mg/bid		61-90	None	
	37-44	Compazine	60mg/bid				
	45-90	None					
2	0-13	Stelazine	10mg/qam	2	15-48	Stelazine	5mg/bid
	14-31	Stelazine	5mg/qam		49-90	None	
3	0-2	Prolixin	10mg/bid	3	15-55	Niamid	75mg/qam
	3-8	Prolixin	5mg/bid		56-80	Niamid	25mg/tid
	9-30	Prolixin	5mg/qam		81-90	Librium	10mg/tid
	31-71	Stelazine	10mg/bid				
	72-90	Stelazine	5mg/bid				
4	0-12	Stelazine	5mg/bid	4	15-90	Compazine	30mg/qam
	13-28	Stelazine	2mg/bid				
	29-90	None					
5	0-14	Stelazine	5mg/tid	5	15-83	Stelazine	5mg/bid
	15-20	Stelazine	10mg/bid		84-90	EST	
	21-30	Stelazine	5mg/bid				
	31-90	None					

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[1] Subject numbers in this table designate same Ss as corresponding numbers in tables of raw data (Appendices K, L, M, and N).

[2] Computed in days backward from date S participated in the study to 3 months prior to study. (0-7 = week just prior to study.)

[3] No patient in this group had received medication for 2 weeks prior to participation in the study. Interval

Subject Number	Interval	Drug	Dosage	Subject Number	Interval	Drug	Dosage
6	0-9	Thorazine	50mg/qid	6	15-90	Thorazine	200mg/qpm
	10-13	Thorazine	75mg/qid				
	14-16	Thorazine	50mg/tid and 100mg/hs				
	17-21	Thorazine	50mg/qid				
	22-90	None					
7	0-72	Thorazine	200mg/tid	7	No history of medication		
	73-90	None					
8	0-28	Stelazine	15mg/qam	8	15-90	None	
	29-90	None					
9	0-31	Thorazine	100mg/qid	9	No history of medication		
	32-35	Thorazine	200mg/qid				
	36-44	Thorazine	200mg/tid	10	15-54	Stelazine	5mg/bid
	45-47	Thorazine	100mg/qid		55-90	None	
	48-90	None					
10	0-21	Stelazine	10mg/bid				
	22-29	Thorazine	150mg/tid				
	30-36	Thorazine	100mg/tid				

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therefore computed from 15th day prior to study backward to 90th day.

Appendix C

The Phillips Premorbid Scale of Adjustment in Schizophrenia

I. PREMORBID HISTORY

A. Recent Sexual Adjustment

1. Stable heterosexual relation and marriage 0
2. Continued heterosexual relation and marriage but unable to establish home 1
3. Continued heterosexual relation and marriage broken by permanent separation 2
4. a) Continued heterosexual relation and marriage but with low sexual drive 3
   b) Continued heterosexual relation with deep emotional meaning but emotionally unable to develop it into marriage. 3
5. a) Casual but continued heterosexual relations, i.e., "affairs," but nothing more 4
   b) Homosexual contacts with lack of or chronic failure in heterosexual experiences 4
6. a) Occasional casual heterosexual or homosexual experiences with no deep emotional bond 5
   b) Solitary masturbation with no active attempt at homosexual or heterosexual experiences 5
7. No sexual interest in either men or women 6

B. Social Aspects of Sexual Life During Adolescence and Immediately Beyond

1. Always showed a healthy interest in girls with a steady girl friend during adolescence 0
2. Started taking girls out regularly in adolescence 1
3. Always mixed closely with boys and girls 2
4. Consistent deep interest in male attachments with restricted or no interest in girls 3

I. B. (cont.)

5. a) Casual male attachments with inadequate attempts at adjustment to going out with girls 4

   b) Casual contacts with boys and girls 4

6. a) Casual contacts with boys and with lack of interest in girls 5

   b) Occasional contacts with girls 5

7. No desire to be with boys and girls; never went out with girls 6

C. Social Aspects of Recent Sexual Life;
30 Years of Age and Above

1. Married and has children, living as a family unit 0

2. Married and has children but unable to establish or maintain a family home 1

3. Has been married and had children but permanently separated 2

4. a) Married but considerable marital discord 3

   b) Single, but has had engagement or deep heterosexual relationship but emotionally unable to carry it through to marriage. 3

5. Single, with short engagements or relationships with women which do not appear to have had much emotional depth for both partners: i.e., "affairs" 4

6. a) Single, has gone out with a few girls but without other indications of a continuous interest in women 5

   b) Single, consistent deep interest in male attachments, no interest in women 5

7. a) Single, occasional male contacts, no interest in women 6

   b) Single, interested in neither men or women 6

C. (Cont'd) Social Aspects of Recent Sexual Life;
Below 30 Years of Age

1. Married, living as family unit, with or without children 0

I. C. (cont.)

2. a) Married, with or without children, but unable to establish or maintain a family home 1

   b) Single but engaged or in a deep heterosexual relationship (presumably leading towards marriage 1

3. Single, has had engagement or deep heterosexual relationship but has emotionally been unable to carry it through to marriage 2

4. Single, consistent deep interest in male attachments, with restricted or lack of interest in women 3

5. Single, casual male relationships with restricted or lack of interest in women 4

6. Single, has gone out with a few girls casually but without other indications of a continuous interest in women 5

7. a) Single, never interested in or never associated with either men or women 6

   b) Anti-social 6

D. Personal Relations: History

1. Always has had a number of close friends but did not habitually play a leading role 1

2. a) From adolescence on had a few close friends 3

   b) From adolescence on had a few casual friends 3

3. From adolescence on stopped having friends. 4

4. a) No intimate friends after childhood 5

   b) Casual but never any deep intimate mutual friendships 5

5. Never worried about boys or girls; no desire to be with boys and girls 6

E. Recent Adjustment in Personal Relations

1. Habitually mixed with others, but not a leader 1

I. E. (cont.)

2. Mixed only with a close friend or group of friends 3

3. No close friends; very few friends; had friends but never quite accepted by them 4

4. Quiet; aloof; seclusive; preferred to be by self. 5

5. Anti-social 6

II. POSSIBLE PRECIPITATING FACTORS

A. Personal Stresses

1. Development of/or change in a deep heterosexual relation:

   a) Without this being a reflection on sexual adequacy, e.g., engagement, marriage, break up of engagement, birth of child, etc. 1

   b) With this being a threat to the sexual potency of the patient, e.g., refusal of intercourse by sexual partner with whom the patient has been deeply involved 2

   c) Which involves a personal failure in the sexual life, e.g., impotence 4

2. Change in relationship with close relation:

   a) Father-son, or relationship with brother, e.g., death of father 3

   b) Mother-son relationship, e.g., remarriage of the mother 5

3. Disturbing interpersonal situation which may carry symbolic significance for patient:

   a) With acquaintence, e.g., refusal of marriage by woman in casual affair with patient; going out with first girl 3

   b) With stranger, e.g., homosexual approach 5

4. Internal conflict: conflict over sexual drives, e.g., over homosexuality 5

II. (cont.)

B. Environmental Stresses

1. Pressure of responsibility for people other than oneself; e.g., to keep up family income 2

2. Increase in external stresses, e.g., induction into Army, law suits 5

3. Single event or situation of possible symbolic significance?

a) Trauma:

(1) Acute physical trauma, e.g., pulling of teeth, wounding in war 3

(2) Acute psychological trauma, or loss of status, e.g., discovery of own illegitimacy, refusal by Army on mental grounds. . . 3

b) Accidental physical injury or disease with presumably no residual physical symptoms, e.g., hitting head on door, sore throat 5

c) Complete absence of noticeable precipitating factors: with gradual onset 6

III. INTACTNESS OF THE PERSONALITY IN FACE OF THE DISORDER

A. Interest in Personal Appearance:

1. a) Marked interest in personal appearance 1

b) Neat and tidy; very neat, tidy appearance 1

2. a) Dressed fairly well 2

b) Body clean 2

3. Fairly neat and clean in bodily habits. 3

4. Untidy in appearance; little attention to appearance; carelessly dressed; uncombed; unusually long growth of hair 4

5. a) Extremely careless about personal appearance; shabby 5

b) Body dirty; clothes soiled; clothes falling apart 5

III. A. (cont.)

6. Had to be forced to bathe and shave 6

B. Social Relations with Other Patients

1. Polite 1
2. Sociable 2
3. Mingles fairly well; friendly 3
4. Mingles poorly; very little interest in other patients. 4
5. a) Doesn't mix with other patients; doesn't talk to other patients 5
   b) Reticent; seclusive, asocial, withdrawn 5
   c) General antagonistic behavior; surly. 5
6. Doesn't volunteer conversation but responds; never speaks unless addressed 5
7. Refuses social advances 6

C. Attitude to Work

1. Eager to work, anxious to work 1
2. Willing; tries to help; interested in work; looks forward to attending O.T. classes 3
3. Little constructive activity; helps occasionally of own volition 4
4. a) Finds fault with placement; complains about work 5
   b) Reluctant to work; never offers to work 5
5. Interests nil 6

IV. SIGNS OF THE DISORDER

A. Affect and Mood

1. Elation mood swings 1
2. Depressed moods without shifts to elation and without attacks of excitement 3

IV. A. (cont.)

3. Dull, flat, compressed affect	4
4. Apathy, indifference	5
B. Impulsivity	
1. Frequent attacks of great excitement; threatening with later apologies	0
2. a) Apologetic, blames self; feelings of guilt.	2
b) Occasional attacks of great excitement.	2
3. Demanding, complaining; e.g., insistence on medicines; seeing doctor	5
C. Thought Processes	
1. Clouding of consciousness with or without other impairment of thought processes	0
2. Circumstantial, but no other formal thought disturbances	1
3. Inattentive; distractible; flight of ideas.	3
4. a) Disconnected; fragmented; scattered; incoherent.	5
b) Trend to neologisms	5
5. Neologisms.	6

Appendix D

Tape Recording of Session with Mothers

E: I wanted to have this opportunity to meet with you together for this session. I hope you aren't too tired after all the different things we've asked you to do.

Mrs. T:
Mrs. R: Mumbles of dissent

E: Good. As you know we have brought you together because both of you have sons and we are interested in learning more about the ways mothers feel about raising their children. During this session, I'm going to give each of you a chance to tell me how you feel a boy ought to be raised.

Later we will discuss your thoughts about this in greater detail but for now I'd like to know whether you would agree or disagree with certain things that have been said about raising children. Well, for example, you have heard people say, "Children should be seen and not heard." Some mothers may agree with that, others may disagree. Suppose I ask you how you feel about it.

Mrs. T: Well, I think that's . . . .
Mrs. R: Hm. It seems to me . . . .

Mrs. T: Go ahead.
Mrs. R: No, you go.

E: Maybe it will be better if we try to do it this way. I will read a statement aloud and then ask one of you at a time to answer it.

But since we are taping this session and other people will hear it, I won't use your last names. Instead, I'll address you just by the first letter of your last name. So I'll just read a statement about ways of raising children first and then ask you, Mrs. T, or you, Mrs. R, to answer it.

Mrs. T: What if we don't know the answer?

E: Well, these statements don't have right or wrong answers. But people do usually feel one way or another about them and I want to know only how you feel.

Mrs. R: If we agree or don't agree with how the other one answers it do you want us to tell you?

E: It may be better if you just tell me how you feel about the question I ask you. Later you will have the chance to discuss your answers together. Do you follow me?

Mrs. T: I think so.
Mrs. R: Uh-huh.

E: O.K. Then let me ask you, Mrs. T, how do you feel about the statement, "A devoted mother has no time for a social life."

Mrs. T: I agree with that--a devoted mother has time only for her family. (Pause) Do you want me to say more?

E: Just how you feel.

Mrs. T: Well, that's how I feel.

E: O.K. That's fine. Mrs. R, how do you feel about this one? "Every parent has a favorite child."

Mrs. R: No, I don't think that's so. Mothers try not to favor one child over another.

E: O.K. That's just fine. Let's start now.

* * * * * * * *

1. E: All right, Mrs. R, let's start with you. Children should be allowed to disagree with their parents if they feel their own ideas are better.

Mrs. R: I agree . . . uh . . . children should be allowed to express their own ideas. It helps them to make decisions.

2. E: Mrs. R, would you answer to this one, too. When a parent says something, the good child always obeys.

Mrs. R: No . . . I disagree. Just because a child disobeys once in a while doesn't mean he's a bad child.

3. E: Mrs. T, will you take this one? A child should not plan to enter any occupation his parents don't approve of.

Mrs. T: I agree with that . . . uh . . . the parents have a lot of experience, and the child doesn't . . . uh . . . know what's best for him. So a parent should tell him what to do.

4. E: Mrs. T, how about this one? Parents should give in sometimes to their children rather than always expect their children to give in to them.

Mrs. T: No, I disagree. Parents always know what's best for their children.

5. E: Mrs. R, do you think that . . . . Parents who are interested in hearing about their children's parties, dates, and fun help them to grow up right.

Mrs. R: I agree. I think parents should take an interest in what their children are doing . . . and I think the children appreciate it.

6. E: Mrs. T, how do you feel about this one? If parents would have fun with their children, the children would take their advice more.

Mrs. T: I disagree. If parents have fun with their children, then . . . uh . . . the children lose their respect . . . and then the children *won't* take advice.

7. E: Mrs. T, will you try this one, too? Mothers very often feel that they can't stand their children a moment longer.

Mrs. T: I definitely agree. Sometimes I feel as if they're . . . just too much to put up with.

8. E: Mrs. R, do you agree or disagree with this one? There's little thanks or pleasure in raising children.

Mrs. R: No, I disagree. I think that raising children is the most satisfying thing a woman can do.

9. E: Mrs. T, your turn now. There is no reason parents should have their own way all the time any more than that children should have their own way all the time.

Mrs. T: I disagree with that. If the parent wants to keep the child's respect the parent *has* to have his own way all the time.

10. E: Mrs. R, do you think that . . . . Parents should pay attention to their children's ideas when making decisions for the family?

Mrs. R: I agree with that. Children are as much a part of the family as parents are, and they should be allowed to have a say in things.

11. E: Mrs. T, how do you feel about this one? The child who is quiet and does not demand attention is the best child.

Mrs. T: I agree. A quiet child . . . doesn't make so many demands on your time . . . and . . . uh . . . gives you some peace and quiet.

12. E: Please try this one, too, Mrs. T. It is easier for a parent to love a child who is good.

Mrs. T: I disagree with that . . . uh . . . the right kind of parent will always love a child no matter what he does.

13. E: Mrs. R, what do you think about this? Quiet children are much nicer than little chatterboxes.

Mrs. R: I agree. (Smiling) Quiet children certainly can be nicer than chatterboxes sometimes.

14. E: Mrs. R -- The only way to treat disobedience is by instant punishment.

Mrs. R: I disagree. The child may have had good reason to disobey, and . . . uh . . . you should find out first before you punish him.

15. E: How about this one, Mrs. T? Things go more smoothly in a family if parents can laugh and joke with their children.

Mrs. T: I disagree. . . . Joking and laughing may be all right, but I think you have to be firm to make a family run smoothly.

16. E: Mrs. R, this is your turn now. When you do things together, children feel close to you and can talk more easily.

Mrs. R: I agree. . . . I think children like to do things with their parents, and . . . uh . . . they feel closer to them when they do.

17. E: Mrs. R, try this one, too. Too much affection will make a child a "softy."

Mrs. R: I disagree . . . giving a child the love he needs certainly won't make him a softy.

18. E: Mrs. T, do you think that. . . . A good way to express disapproval of a child is to ignore him?

Mrs. T: I agree . . . and I use this method quite often. If you ignore him he knows he's bad.

19. E: Mrs. R, do you agree or disagree with this one? A child must always live up to what his mother expects of him.

Mrs. R: I disagree there. Many mothers . . . uh . . . expect too much of their children, and make it hard for the children to live up to it.

20. E: Mrs. T, how about this one? It is best to give children the idea that their parents have no faults.

Mrs. T: I agree with that one. If you let them get that idea, then they'll think you're weak and won't listen to you.

SOURCE AND DIMENSION OF THE CHILD-REARING ATTITUDE STATEMENTS

Item Number	Statement	Source	Dimension
1.	Children should be allowed to disagree with their parents if they feel their own ideas are better.	Schaefer and Bell (1958)	Dominance
2.	When a parent says something, the good child always obeys.	Garmezy et al. (In press)	Dominance
3.	A child should not plan to enter any occupation his parents don't approve of.	Garmezy et al. (In press)	Dominance
4.	Parents should give in sometimes to their children rather than always expect their children to give in to them.	Schaefer and Bell (1958)	Dominance
5.	Parents who are interested in hearing about their children's parties, dates, and fun help them to grow up right.	Schaefer and Bell (1958)	Rejection
6.	If parents would have fun with their children, the children would take their advice more.	Schaefer and Bell (1958)	Rejection
7.	Mothers very often feel that they can't stand their children a moment longer.	Shepard and Guthrie (1959)	Rejection
8.	There's little thanks or pleasure in raising children.	Shepard and Guthrie (1959)	Rejection
9.	There is no reason parents should have their own way all the time, any more than that children should have their own way all the time.	Schaefer and Bell (1958)	Dominance
10.	Parents should pay attention to their children's ideas when making decisions for the family.	Schaefer and Bell (1958)	Dominance

Item Number	Statement	Source	Dimension
11.	The child who is quiet and does not demand attention is the best child.	Garmezy et al. (In press)	Rejection
12.	It is easier for a parent to love a child who is good.	Garmezy et al. (In press)	Dominance
13.	Quiet children are much nicer than little chatterboxes.	Garmezy et al. (In press)	Rejection
14.	The only way to treat disobedience is by instant punishment.	Garmezy et al. (In press)	Dominance
15.	Things go more smoothly in a family if parents can laugh and joke with their children.	Schaefer and Bell (1958)	Rejection
16.	When you do things together, children feel close to you and can talk more easily.	Schaefer and Bell (1958)	Rejection
17.	Too much affection will make a child a "softy."	Shepard and Guthrie (1959)	Rejection
18.	A good way to express disapproval of a child is to ignore him.	Shepard and Guthrie (1959)	Rejection
19.	A child must always live up to what his mother expects of him.	Garmezy et al. (In press)	Dominance
20.	It is best to give children the idea that their parents have no faults.	Garmezy et al. (In press)	Dominance

Appendix F

Pilot Study for Selection of Equated Voices

It was felt that the voices used in the present study should satisfy two criteria: (1) that they have Southern regional accents so as to be more salient as reinforcers for the Ss used, all of whom were native to the North Carolina area, and so as to lend authenticity to the purported interview, and (2) that they be as nearly alike in voice quality as possible. It was decided to select a number of women whose voice qualities were roughly equal, and all of whom had Southern accents. From this "pool" of voices, then, on the basis of the ratings of a number of pilot subjects, the voices used in the study were chosen. Four women were found whose voices satisfied the above conditions. Each was asked to read a paragraph concerning child-rearing practices onto a tape for the purpose of having the voice qualities rated.

Twenty-five introductory Psychology students were asked to listen to the voices as they read the passage, and rate them in three different ways: (1) A list of adjectives was presented to each rater, and he was asked to indicate with a check mark whether or not he thought each of the adjectives applied to the voice he had just heard, (2) a modified semantic differential was constructed which could be used to rate the voices along the dimensions of Evaluation, Potency, and several other descriptive categories chosen by E as pertinent to the aims of the study (see below), and (3) each rater was asked to give an open-ended description of the woman whose voice he had heard.

The following instructions were given:

> I've asked you all to come here this afternoon to help me in the early stages of some work I'm interested in. It has to do with the question of how much of a part someone's voice plays in the impression we form of him. I'm going to play for you a tape recording of some women reading some material from a printed page. After each person

finishes, I'm going to ask you to tell me what kind of impression you've gained of each of them. There will be four people in all, and after hearing each one we will take a short break, in the hope that the voice you heard previously won't interfere with the impression you form of the next voice.

I shall ask you to rate these people in the following ways. You'll be given a booklet that is divided into three sections. One section is comprised of lists of adjectives, with a space next to each word. All I want you to do in this section is put a check mark next to any of the adjectives that you think describes the person whose voice you've just heard. If you are uncertain whether a particular adjective applies, or if you think it does not, just leave the space next to that adjective blank. Are there any questions about that section?

All right. Now the second section is somewhat different. Here you will see pairs of adjectives that are opposite to each other. Between each pair of adjectives there are seven spaces, and you are to place a check mark in one of these spaces. Let's take an example. Suppose we were rating on the basis of the opposite adjectives "tall" and "short." If you consider the person you've heard to be very tall, you would put your check mark here, or if you think the person is very short, the check would go here. (E pointed to the two extreme positions.) If you think that the person is quite tall or quite short, your check mark would go here or here. (E again pointed to the appropriate positions.) If you think the person is just somewhat tall, or somewhat short, your check mark should go here or here. Now, if you think of this person as someone who seems neither tall nor short, or just average—or if you think you have no basis for judging, then just put your check mark in this middle position. I'd like you, though, to avoid using the middle position as much as possible, and to try your best to make some judgment in each case. One thing to keep in mind here is that, whereas in the check list section you could leave the item blank if you thought it did not apply, in this section I'd like you to enter a check for every item. Now some of the adjectives you see here to describe the person you've heard may seem unusual for describing people. But in these cases try to imagine the person in terms of such an adjective pair, and make the best judgment you can.

In the final section I simply want you to write a brief descriptive comment about the person you've just heard. Just tell me in your own words what sort of person you think this is—what this person is like. Are there any questions?

Now before we begin I'm going to read to you the paragraph that each of the women is going to read on the tape. I will read it for you three times, and would like you to listen carefully to the content of the passage. Then when you hear the women read the same passage, I would like you to try to disregard the content of the passage, and concentrate on the voice qualities of the woman who is reading it.

E then read the passage three times, and proceeded with the ratings of the voices as described in the instructions.

The check list was comprised of ten adjectives, five of which were positive in their connotation, and five of which were negative. The positive adjectives were "loving," "sympathetic," "dependable," "helpful," and "praising." The negative adjectives were "domineering," "rejecting," "angry," "punishing," and "fault-finding."

Eighteen pairs of polar adjectives were used. Five of these pairs related to the dimension of dominance: "domineering-submissive," "controls others-permits freedom," "intolerant-tolerant," "inflexible-flexible," and "autocratic-democratic." Five other pairs were related to the dimension of rejection: "strict-lenient," "unfriendly-friendly," "cold-warm," "rejecting-accepting," and "criticizes others-praises others." Those adjective pairs having to do with the potency dimension were: "large-small," "heavy-light," and "strong-weak." Those having to do with the evaluative dimension were: "kind-cruel," "nice-awful," and "fair-unfair." Two other adjective pairs were used because of their relevance to personality impressions. They were "young-old," and "well-liked-disliked."

No rigorous statistical tests were applied to the data gathered in this pilot study. The open-ended descriptions would not permit of such treatment, and it would have been difficult to assign any real meaning to a test of significance on the adjective data. Instead it was decided to use the two voices which satisfied the conditions of having been rated as most nearly alike considering both the check list and adjective pairs data, and which were also the most neutral as defined by their approximation to the midpoints of the scales used for rating.

Table XVIII presents the data gathered using the adjective pairs, expressed

in terms of the mean rating for each voice by all subjects, on each of the six dimensions used.

Table XVIII

PILOT RATINGS OF VOICES: ADJECTIVE PAIRS*

Dimension	First Voice	Second Voice	Third Voice	Fourth Voice
Liked-Disliked	4.8	4.1	5.8	4.4
Young-Old	4.0	5.1	2.3	3.1
Dominance	4.2	4.8	2.2	5.1
Rejection	3.8	4.4	2.2	4.7
Evaluation	5.0	4.7	6.0	3.7
Potency	3.8	4.5	2.2	4.9

*Midpoint = 4.0.

Table XIX presents the data from the adjective check lists, expressed in terms of the mean rating for each voice by all subjects on the positive adjectives and on the negative adjectives.

Table XIX

PILOT RATINGS OF VOICES: ADJECTIVE CHECK LISTS*

Dimension	First Voice	Second Voice	Third Voice	Fourth Voice
Positive	11.6	8.8	18.2	5.2
Negative	6.2	9.6	1.0	14.8

*Midpoint = 12.5

The open-ended descriptions of the voices were read and compared with the adjective data mainly in order to evaluate the reliability of the impressions formed as expressed, on the one hand, in relatively objective terms, and, on the other, in somewhat more subjective terms. No remarkable inconsistencies were found using this procedure.

Taking into account the data from both the adjective pairs and the adjective check lists, it seemed that voices 1 and 2 were the most closely matched and the voices most consistently close to the midpoints of the scales used to describe them. On this basis those voices were used in making the tape recording for use in the present study.

In transposing the script of the tape recording onto the tape itself, extreme and continuous care was taken that the voices of E and of the two women were expressed at the same decibel level. The procedure was as follows: The microphone used in making the tape recording was placed in the center of the table around which the three participants sat, in such a way that the microphone was equidistant from all three. Next to the microphone was placed a sound level meter (Sound Level Meter, Type #1551B, General Radio Co., Cambridge, Mass.) which measures sound in decibels. Throughout the transcription of the script, readings were taken from the sound meter at fifteen-second intervals by a fourth person present. A total of 71 readings was taken, 30 for E, 20 for Voice 1, and 21 for Voice 2. The mean decibel levels for the three voices over the entire course of the tape were, respectively, 66.67, 65.20, and 65.48.

Appendix G

Stimulus Identification Panel

This piece of apparatus was designed in two units, one serving as a response panel for S, and the other as a control panel for E. A detailed description of both units is given below, followed by a description of how both were used in the study.

Response Panel: The function of this panel was to keep S's attention directed toward the content of the tape recording, and to aid in the differential endowment of the maternal stimuli with certain child-rearing attitudes. The response panel was a boxlike piece of apparatus, with its upper surface slanted slightly down toward S at a twelve degree angle. On its surface were mounted two 3-1/4" x 4" lantern slides on which were the photographs of the positive and the negative mother. Behind each of the slides was a piece of Insuroc which served as a diffusing medium for the illumination emanating from the 6w. bulbs affixed under the panel. Located on the surface of the panel, beneath each of the slides of the mothers, was a card identifying those mothers as "Mrs. R" (the positive mother, on the left), and "Mrs. T" (the negative mother, on the right). Beneath each of the identifying cards was a push-button reset of the normally open type.

The dimensions of the display surface of the panel were 11-5/8" x 12". The apparatus was 2-3/8" high at the front and 5-1/8" high at the back. Its depth was 11-3/4".

Control Panel: The control panel was equipped with a number of monitoring lights, switches, and fixtures. Two small panel indicator lights were connected in series with the push-buttons on the response panel, and indicated which of the buttons had been depressed by S. A two-position rotary selector

switch was used to govern which of the stimulus slides would be illuminated, regardless of which of the push-buttons was depressed by S. A manual reset push-button was used to turn off the illumination behind the slide on the response panel that had been illuminated when S depressed the appropriate button. (A "safety" control had been wired into the circuit with the push-button reset on the control panel. If the slide on the response panel remained illuminated for as long as 15 seconds, a delay tube, Amperite, 115NO15, automatically turned off the illumination.) A toggle-type on-off switch governed the power supply for both the control panel and the response panel. Finally there were affixed to the surface of the control panel a recessed-base clock outlet, and a duplex power outlet, so that other pieces of apparatus could both draw their power from and be governed by the control panel. No other pieces were used in the present study, but the unit was designed for use in another study (see Chapter

The surface of this unit measured 11-1/4" x 11-1/2". It was 3" high at the front and 5-1/2" high at the back. Its depth was 11-1/4".

Used in conjunction with the two units of apparatus just described were two light boxes located at the front of the room, to either side of the screen. The front surface of these boxes was a sheet of Insuroc, on which had been painted the names of the mothers used in the study. These boxes were wired to a small switch box located on E's desk. The switch was a three-position rotary type. Its center position was off; when moved upward it illuminated the right box, and when moved downward it illuminated the left box.

Operation of the Units: These units were used in the following sequence:

(1) E flashed a statement of a child-rearing attitude on the screen, and read it aloud to S. He then informed S of which of the two mothers had been

asked to indicate assent or dissent with that attitude, and set the selector switch on the control panel to the position for that mother.

(2) If S depressed the push-button under the picture of that mother, the indicator light for that mother on E's panel went on, and the slide for that mother on S's panel was illuminated. If S pressed the wrong button, the indicator light for that push-button would go on (on E's panel), but neither of the slides on S's panel would be illuminated. E would then prompt S to depress the correct button.

(3) When the correct button was depressed by S, that mother's picture would appear on the screen, and her name would be illuminated.

(4) As S listened to the mother's response, E would set up the next statement slide, turn off the slide on S's panel, and set the selector switch for the next trial. If during the course of these operations E neglected to turn off the slide on S's panel, the delay tube caused it to go off after fifteen seconds, a considerable time before the mother had completed her response to the child-rearing attitude presented to her.

(5) As E showed the child-rearing statement on the screen for the next trial, he also set up the slide projector containing the pictures of the mothers, so that the appropriate one was shown upon S's having depressed the push-button.

Appendix H

PAIS Test

+L, -A 1. Which mother feels everybody is nice to her and her family?

+L, +A 2. Which mother likes to meet her son's friends?

-L, +A 3. Which mother thinks she is better than anyone else?

-L, -A 4. Which mother thinks she has to work too hard all the time?

+L, -A 5. Which mother does not like to argue with anybody?

+L, +A 6. Which mother helps her son with his homework?

-L, +A 7. Which mother brags a lot?

-L, -A 8. Which mother won't talk to her son when she is mad at him?

+L, -A 9. Which mother always agrees with other people?

+L, +A 10. Which mother shows her son how to do things when he asks for help?

-L, +A 11. Which mother argues a lot?

-L, -A 12. Which mother says her son does bad things just to make her feel bad?

+L, -A 13. Which mother gives her son anything he wants?

+L, +A 14. Which mother does her son's homework for him when he can't do it?

-L, +A 15. Which mother wants to have more things than anybody else?

-L, -A 16. Which mother tells father on her son when he does something?

+L, -A 17. Which mother likes to have lots of friends?

+L, +A 18. Which mother is looked up to by everybody?

-L, +A 19. Which mother gets mad if her son tries to explain why he did something?

-L, -A 20. Which mother says her family would be better off without her?

+L, -A 21. Which mother believes everybody is good and kind?

+L, +A 22. Which mother always does a good job?

-L, +A 23. Which mother spanks her son no matter what he does?

-L, -A 24. Which mother is always giving excuses why she can't do things?

+L, -A 25. Which mother is always kissing and hugging her son?

+L, +A 26. Which mother shows people what to do?

-L, +A 27. Which mother always tells the truth even if it hurts somebody?

-L, -A 28. Which mother acts like everybody is better than she is?

+L, -A 29. Which mother loves everybody?

+L, +A 30. Which mother helps people do things the right way?

-L, +A 31. Which mother does not like the way her son acts?

-L, -A 32. Which mother doesn't care what her son does?

Appendix I

Occupational Choice Cards

The use of job preferences as a vehicle through which S could express conformity behavior was based upon several considerations. First, it was important that the task be intrinsically interesting for S. In addition it was felt that the content of the stimuli should be from an area which had been of significance in the life history of S. Finally, it was important that the content should be from some area of the patient's life history in which the decisions S had made had been influenced, at least to some extent, by his parents. Job choices not only satisfied these criteria well, but had the additional quality of connoting an area of decision making which could lead to autonomy from parental influence.

E was interested, then, in finding some means of displaying occupational stimuli in such a way that (a) S could grasp easily the nature of the occupations presented, (b) he could signify his decisions to S with a minimum of verbal interaction or motor activity, and (c) the preference of some influential other person, the mothers in this case, could be easily conveyed to S.

The Occupational Choice Apparatus and Cards performed all of these functions well. The pictures used for the cards have been generally described in Chapter IV. They are simply drawn, put a minimal emphasis on verbal skills, and the ones used in the study were selected as examples of easily recognized occupational areas.

The dimensions of the cards, as modified to fit the OCA, were 3-3/4" x 8". The rectangular piece cut out of the center measured 1" x 1-7/8", and enabled the card to be fit snugly over the fixture on the face of the OCA. Each of the occupational pictures measured 2" x 2-1/2" and was affixed to the cards with

Carter's rubber cement. The pictures were located immediately adjacent to the rectangular aperture, a position directly above which the switch lever stopped as S made his preference response.

The following list describes the trial on which the pictures appeared, their position on the card, the activity depicted in each, and the code designation of each picture as it originally appeared in the CPII. Cards 1 to 10 were seen with no maternal figure, cards 11 to 40 with the negative mother, and cards 41 to 54 with the positive mother.

	Left Side		**Right Side**	
Trial Number	Code # in CPII	Description	Code # in CPII	Description
1	4a	Repair washing machine	46b	Electrician
2	13c	Working as a bellhop	44c	Running an elevator
3	48c	Singing	14a	Playing a clarinet
4	6b	Typing	52b	Calling on a sales prospect
5	50b	Feeding pigs	16a	Picking fruit
6	40b	Styling hair	12a	Cutting hair
7	53b	Repairing a bicycle	15c	Repairing a radio
8	8b	Addressing a jury	5a	Teaching children
9	51b	Operating a movie camera	21c	Carving in stone
10	10a	Laying bricks	44a	Laying shingles
11	26b	Repairing a typewriter	40a	Repairing a watch
12	21b	Umpiring a game	53c	Life-guarding
13	25a	Working as a bank officer	43c	Editing a newspaper
14	49c	Feeding horses	37b	Gardening
15	2b	Painting a picture	28a	Taking a photograph
16	36c	Coaching a football team	48b	Teaching arithmetic
17	33c	Surveying	45b	Drafting
18	10b	Working as a night watchman	19c	Waiting on tables
19	36b	Selling real estate	29a	Demonstrating a new car
20	47c	Working in an oilfield	32c	Plumbing
21	50a	Operating a metal lathe	18a	Adjusting a sewing machine
22	50c	Chauffering	23a	Driving a cab
23	35c	Working as a postal clerk	41b	Wrapping a package
24	22c	Gardening	26c	Pruning a tree
25	8c	Drafting a house plan	37c	Painting a sign
26	17c	Giving a physical examination	51a	Testing vision
27	23b	Repairing shoes	13a	Moving stage scenery

	Left Side		Right Side	
Trial Number	Code # in CPII	Description	Code # in CPII	Description
28	38a	Working as a busboy	27c	Carrying luggage
29	22a	Typing	10c	Filing papers
30	30a	Repairing a tractor	21a	Making a cabinet
31-40		Repeats of cards 1-10		
41	35b	Riveting steel	41c	Mining
42	39c	Delivering a sermon	25b	Judging a court case
43	49a	Clerking in a hotel	4c	Clerking in a grocery store
44	38b	Milking cows	19a	Forking hay
45	49b	Handpainting a tie	23c	Trimming a window
46	46a	Delivering mail	6a	Directing traffic
47	1a	Facing a doorway with stone	37a	Painting a ceiling
48	30b	Shelving books	16b	Working as a hospital orderly
49	34b	Cashiering in a restaurant	18b	Typing
50	28b	Grinding optical lenses	3c	Repairing a watch
51	33a	Examining cabbages	12b	Inspecting meat
52	11c	Announcing on radio	25c	Giving a piano recital
53	1c	Feeding chickens	4b	Felling a tree
54	41a	Painting a sign	5b	Drafting a house plan

Appendix J

Occupational Choice Apparatus

This piece of apparatus was built in two units, one serving as a response panel for S, and the other serving as a control panel for E. A detailed description of each unit is given below, followed by a description of how both were used in the study.

Response Panel: This unit of the OCA was used in two ways during the participation of any one S. At the outset it was used as a simple two-position response key (see Figure 3). Later in the procedure it was used again as a response key, but with a screen removed permitting the insertion of a stimulus slide and the illumination of one of two arrows imbedded in the surface of the response panel (see Figure 4).

One section of this piece was built in a roughly horizontal plane, but slanted down toward S at a slight angle of twelve degrees, to prevent glare from the room lights from obscuring any of the stimulus materials being displayed. Directly behind this section, and attached to it, was a roughly vertical section, used for tho presentation of the slides on which were the photographs of the maternal figures. The back section slanted away from S at a slight angle of ninety-five degrees, so as to present the maternal figure in a plane roughly parallel with S's face plane.

The dimensions of the horizontal panel were 7" x 12". Projecting up through its center was a 3/8" rod, to the top of which had been fitted a wooden handle. This rod was attached by springs to a micro roller switch on each side underneath the panel, and was maintained in a center position at rest by the oppositional forces of the two springs. The arrows were 2" long and 1/2" wide, and were made of an opaque, white, plastic-like product, Insuroc. Each

was illuminated from underneath the panel by its own 6w. power source. Surrounding the switch lever was a rectangular plastic piece, with an aperture cut out of its center to afford clearance for the left-right manipulation of the lever. This rectangular piece served as a fixture over which could be placed the Occupational Choice Cards (described in Appendix I).

The dimensions of the vertical panel were 6-1/2" x 12". Imbedded in the center of the face of the vertical panel was an Insuroc piece measuring 3-1/2" x 4". Behind this piece was another 6w. bulb which illuminated the Insuroc window. Raised from the surface of the vertical panel, and surrounding the Insuroc window on three sides was a metal frame into which could be inserted a 3-1/2" x 4" lantern slide, which was illuminated from behind by the diffuse light passing through the window.

The overall height of this response panel, from the table surface to the top of the vertical panel was 11-1/2", and its depth, from the front of the horizontal panel to the back of the vertical panel was 11".

Control Panel: The control panel was a boxlike piece of apparatus which, like the response panel, was built with a slanted horizontal surface. Its top surface measured 8-3/8" x 8-5/8", and its bottom surface 8-1/4" x 8-5/8". It was 3-1/4" tall at the front and 5" tall at the back.

On its surface were located four switches. One of these was a main power switch for both the response panel and the control panel; this was a simple on-off toggle-type switch. Two other switches were of the two-position rotary type. One of these was an on-off switch that governed the illumination on the response panel of the picture of the maternal figure. The other was a selector switch which determined which of the two arrows on the response panel would be illuminated when the fourth switch on the control panel was used. This last was a push-button reset which closed a latch-in relay and illuminated the arrow

for which the selector switch had been set. The latch-in relays used in this study were all of the KBAY Potter-Bromfield 110V 4P DT type. On the side of the control panel was built in a recessed-base clock outlet, to which was attached the Standard Clock Timer used for measuring the latency of S's response. This clock was activated by the depression of the push-button reset which illuminated the arrows.

Operation of the Units: The sequence of operation for these units was in the following steps:

(1) E placed an occupational choice card over the switch lever. The maternal stimulus was continuously illuminated.

(2) E set the selector switch on the control panel to determine which of the arrows was to be illuminated, and described to S the nature of the two jobs on the card.

(3) E told S which of the two jobs had been recommended by the depicted mother, and simultaneously depressed the push-button reset. This reset illuminated the appropriate arrow, and activated the clock at the same time.

(4) S indicated which of the jobs he preferred by moving the switch lever to the left or right. The microswitch closed on the side toward which S pushed the lever, turning off the illuminated arrow, and stopping the clock.

(5) E noted the direction and latency of S's response, and set up the control panel for the next trial.

Appendix K

Proportions of Agreement*

Subject Number	Non-Drug Schizophrenics		Drug Schizophrenics		Alcoholics		Normals	
	Positive Mother	Negative Mother	Positive Mother	Negative Mother	Positive Mother	Negative Mother	Positive Mother	Negative Mother
1	57.14	70.00	35.71	43.33	57.14	50.00	78.57	56.67
2	64.29	66.67	50.00	43.33	78.57	43.33	71.42	53.33
3	71.43	50.00	85.71	40.00	78.57	70.00	64.29	63.33
4	64.29	56.67	78.57	53.33	92.86	26.67	78.57	53.33
5	92.86	86.67	42.86	56.67	64.29	46.67	64.29	46.67
6	92.86	60.00	42.86	46.67	64.29	40.00	71.42	56.67
7	71.43	50.00	71.42	60.00	64.29	50.00	64.29	56.67
8	57.14	50.00	71.42	46.67	71.43	50.00	71.42	43.33
9	71.43	66.67	35.71	56.67	78.57	60.00	64.29	50.00
10	100.00	70.00	92.86	20.00	57.14	63.33	64.29	53.33

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*Proportions of disagreement = (100-proportion of agreement).

Appendix L

Direction of Change on Repeat Trials

Subject Number	No Change				Change Toward Agreement				Change Toward Disagreement			
	ND	D	A	N	ND	D	A	N	ND	D	A	N
1	5	9	10	10	4	0	0	0	1	1	0	0
2	10	10	8	10	0	0	0	0	0	0	2	0
3	3	9	9	9	4	1	1	1	3	0	0	0
4	10	9	10	9	0	1	0	1	0	0	0	0
5	5	9	10	10	5	0	0	0	0	1	0	0
6	5	10	9	10	4	0	0	0	1	0	1	0
7	9	8	10	10	0	2	0	0	1	0	0	0
8	8	10	10	10	0	0	0	0	2	0	0	0
9	8	10	10	10	2	0	0	0	0	0	0	0
10	8	8	9	10	2	1	0	0	0	1	1	0

Appendix M

Latencies of Agreement and Disagreement with Negative Mother

Subject Number	Agreement				Disagreement			
	ND	D	A	N	ND	D	A	N
1	7.14	2.61	4.93	3.72	8.81	3.57	3.99	3.43
2	4.36	2.38	15.70	3.70	6.35	2.38	11.48	4.15
3	22.55	6.05	5.97	3.86	19.55	5.33	6.38	4.04
4	5.53	3.49	31.32	3.48	7.73	6.44	19.95	3.85
5	23.36	4.77	4.79	5.23	31.22	7.61	4.83	4.34
6	13.90	3.06	2.66	2.70	14.52	3.75	4.41	3.63
7	5.60	5.40	4.47	2.87	9.86	6.07	4.53	2.25
8	9.42	2.33	3.96	5.17	7.60	2.11	4.13	6.16
9	8.12	7.60	3.62	4.13	6.02	11.50	4.33	3.00
10	3.27	4.40	2.27	4.54	3.82	3.21	2.08	4.85

[illegible]

[illegible]

[illegible]				[illegible]				[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	9
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10

Appendix M

Latencies of Agreement and Disagreement with Positive Mother

Subject Number	Agreement				Disagreement			
	ND	D	A	N	ND	D	A	N
1	5.80	1.53	3.32	2.76	6.76	1.87	3.82	1.77
2	6.68	2.50	7.20	3.57	5.75	2.87	12.88	4.17
3	15.56	2.46	4.02	3.54	23.53	2.68	6.98	3.39
4	5.95	6.07	17.37	3.23	7.08	7.90	34.20	4.53
5	23.22	7.47	3.97	3.56	21.90	3.71	4.44	4.97
6	9.28	2.19	6.55	2.73	16.60	2.94	6.91	2.70
7	11.49	5.24	3.48	3.07	23.31	6.59	3.38	3.65
8	6.71	1.79	4.29	7.59	8.52	2.20	5.13	4.55
9	7.16	7.72	4.55	2.12	6.05	9.18	4.80	2.81
10	2.64	2.87	2.56	3.82	3.24	4.35	2.01	4.75

Appendix N

PALS Test Data for Negative Mother

Subject Number	(+L, -A)				(+L, +A)				(-L, +A)				(-L, -A)			
	ND	D	A	N	ND	D	A	N	ND	D	A	N	ND	D	A	N
1	2	1	0	0	2	2	2	1	5	7	6	7	5	8	5	6
2	7	8	0	1	5	7	2	3	3	1	7	5	3	1	7	8
3	0	1	3	1	3	1	2	1	8	7	4	7	4	8	7	6
4	4	2	1	0	3	0	1	2	5	5	7	7	6	7	8	7
5	4	0	1	0	4	0	1	1	5	7	7	8	3	7	8	7
6	4	0	0	2	5	3	1	1	1	7	7	7	6	6	7	6
7	1	0	2	0	1	0	1	0	8	7	7	7	6	7	7	7
8	2	4	1	0	1	4	2	1	7	4	7	7	7	6	7	6
9	1	1	5	2	1	0	6	2	6	7	1	5	7	7	0	3
10	4	1	0	1	4	1	2	2	6	7	8	7	3	8	4	8

Appendix N

PAIS Test Data for Positive Mother

Subject Number	(+L, -A)				(+L, +A)				(-L, +A)				(-L, -A)			
	ND	D	A	N	ND	D	A	N	ND	D	A	N	ND	D	A	N
1	5	7	8	8	6	6	6	7	3	1	2	1	3	0	3	2
2	1	0	8	7	3	1	6	5	5	7	1	3	5	7	1	0
3	8	7	5	7	5	7	6	7	0	1	4	1	4	0	1	2
4	4	6	7	8	5	8	7	6	3	3	1	1	2	1	0	1
5	4	8	7	8	4	8	7	7	3	1	1	0	5	1	0	1
6	4	8	8	6	3	5	7	7	7	1	1	1	2	2	1	2
7	7	8	6	8	7	8	7	8	0	1	1	1	2	1	1	1
8	6	4	7	8	7	4	6	7	1	4	1	1	1	2	1	2
9	7	7	3	6	7	8	2	6	2	1	7	3	1	1	8	5
10	4	7	8	7	4	7	6	6	2	1	0	1	5	0	4	0

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